# e Iron

A Review of the Hardware, Iron and Metal Trades.

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#### The Epping Pumps.

In the accompanying illustrations we show two styles of a direct-acting pump, the distinguishing features of which are the invention of Mr. Epping, of Messrs. Thompson, Epping & Carpenter, manufacturers, of Pittsburgh, Pa. Both are direct-acting plunger pumps, the motion of the steam valve being the same in both cases. The main valve is a simple slide valve, which has recessed at the upper corners and cups on the inner side, and is provided with a pin which acts through an opening in the steam chest. The main valve is provided with an opening to receive the end of a pin on the auxiliary valve. This pin passes through the opening in the chest into the opening in the main valve, and is intended to aid in starting the pump. The auxiliary valve is moved by means of shifters, as shown in the cuts, which, in turn, are operated by pins in each end of the cylinders. It is by this combination that any stoppage of the pump is guarded against and a regular motion is secured.

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combination that any stoppage of the pump is guarded against and a regular motion is secured.

Fig. 1 represents a pump designed especially for the hydraulic cranes and elevators so generally included in the plant of our open-hearth and Bessemer steel works. The pump has a 24-inch steam oylinder, an 3-inch pump cylinder and a 24-inch stroke. There are 3 brass water valves, the closing of which is effected by strong spiral springs. Care has been taken to afford plenty of room between the pump cylinders for packing the plunger, and in order to give ample security against breakage by reason of the high pressures sustained (a maximum of 500 pounds per square inch) the machine is made as durable and compact as possible, the pump chambers, for instance, having a thickness of 2 inches. We are informed that two of these pumps have been in service at the Black Diamond Steel Works and at the works of Messrs. Mackintosh, Hemphill & Co., and that the Spang Iron and Steel Company are about to put in two in their new steel works.

Fig. 2 illustrates the design for mines and water works, intended to deal with larger volumes of water. The one shown was built for Messrs. Andrews Bros., of Youngstown, Ohio, for pumping water from a depth of 250 feet. It has a 28-inch steam cylinder, 14-inch water cylinder and 28-inch stroke, and possesses a capacity of 1,000,000 gallons per day. For acid or gritty water, Messrs. Thompson, Epping & Carpenter provide their pumps with a special reversible lining, which may be shifted whenever a new bearing becomes necessary.

#### Congress and the Mining Laws.

Members from the mining States are of opinion that nothing will be done during the session of Congress to change the existing mining laws. All admit that there is need of improvement, but the fact cannot be overlooked that the miners understand the present system and are strongly opposed to any changes. Those who favor a change refer to the vast number of suits growing out of conflicting mining claims, and urge the importance of adopting some uniform code that will tend to do away with them. They claim that a mine should be regarded the same as to property rights as a farm; that the miner should not be allowed to follow his mineral beyond the exterior boundary of his claim, and that there should not exist or arise any more occasions for litigation over a mine than over a farm. To secure this state of things they would have the rules governing the use and ownership of agricultural lands made amplicable to the rules governing the use and ownership of agricultural lands made applicable to mineral lands. It is asserted that in all other countries this rule applies; and, as a consequence, capital can be invested safely, while in this country a man may purchase a mine to-day and find himself involved in a wanit to morrow.

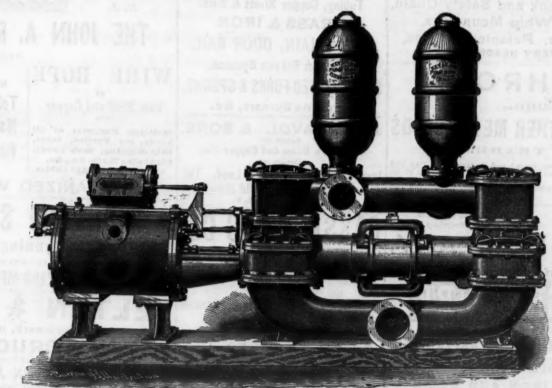
The American system had its birth in Califorsis, where the miner was allowed to follow his vein wherever it went in its downward course. Congress recognized this right in the Act of 1866, and again in the Act of 1872. These two acts have received judicial construction, and are now pretty well understood. In the XLVth Congress an act was passed greating a Path.

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nities all right to legislate upon the subject.
This bill, as amended by the Committee on through the two ports its passage unless an effort is made to prossite passage unless an effort is made to prospect to made thus obtained (generally at one two operations is then brought out of the loops or eyes of the links a prospect the loops or eyes of the loo

Fig. 1.—Pump for Hydraulic Cranes, Elevators, &c.

of one vote, but before it was reported to the House Mr. Belford, of Colorado, (a member of the committee) brought forward a substitute, which had been agreed upon by the members and delegates from the mining States and Territories, and which provides that "in all cases where the mean dip of the lode does not exceed 25 degrees from the horizon, the right to follow the mineral shall not extend beyond the side lines of the loca-



the loops then resting on the punch, or on the movable set-driving hammer of the grip tongs. The following is the method of manufacturing a weldless chain, with reduction of the interior longitudinal length of the link: The system of weldless chains, with loops, has a longer opening of the loop lengthwise than in ordinary chains, because the interior length of the loop must be equal to its exterior breadth, in order to pass a link through the previously made link. This long opening being a drawback in some of the applications of the weldless chain, that defect is obviated by making a long and narrow loop by forging with a die, or by rolling; then, after its linking to the chain, and while still hot, it is enlarged, and consequently shortened, in longitudinal interior length by means of a conical punch. By this operation, weldless chains with loops are obtained, with an interior opening of about four times the diameter of the circular part, instead of 4½ times, which is the necessary length before reduction. By the several operations above described, various types of weldless chains may be obtained, such as round chains, naval chains of special form, Vaucanson's or endless chains, and others.—Universal Engineer.

#### The Cuban Exhibition.

The Cuban Exhibition.

The International Exhibition at Matanzas, Cuba, begins February 10 and lasts an indefinite length of time. An English translation of the instructions to the exhibitors, dated August 30, 1880, has just been issued in New York under the auspices of Mr. Benjamin Giberga, genoral agent for the United States, whose post office address is box 3131, New York city, and who may be consulted daily from 12 to 1 p. m. at No. 50 Broadway, up stairs, in the office of J. N. Cestero. The Matanzas address is "Aparlado No. 2." All objects from abroad will be admitted even after the opening of the exhibition, and space for displaying goods will be granted free of charge. Eleven leading railroads of Cuba offer to transport all goods gratuitously to the Exhibition, and the same liberal offer is made by several lines of steamers and schooners, including more especially the Ward line of United States mail steamers, whose office is at No. 113 Wall street, New York. The Messrs. Ward also offer to bring back to New York, free of charge, such goods as were taken out by their steamers on the evidence of a certificate from the Central Committee proving that the same were displayed at the Exposition. There will be no customs duties for goods, manufactures and animals sent to the Exposition through the ports of Havana and Matanzas, in conformity with certain presantionary regulations given in detail in the pamphlet, relating more especially to special works, signature of the invoices by Spanish consuls and reshipment of merchandise the importation of which is prohibited by Cuban law. The Executive Committee will, if desired, undertake to act as agents for absent exhibitors, for the sale of their goods at the prices specified by the latter. Live stock seems to be considered as one of the principal specialties of the Exposition. The classification of objects to be received deals extensively with agricultural machinery, fertilizers, hydraulics and machinery for the manufacture of sugar and other staples of the island. The scribed by Cuban associations in favor of the smaller industries of the country. Exhibitors will of course enjoy free entrance to the Exposition, and space for the sale of goods can be obtained on easy terms. For other particulars, reference may be made to the pamphlet or to the New York agent above named.

How Railway Time is Kept.—There are in use between Albany and New York 13 electric clocks, two of the number being placed in the waiting-rooms, and one in the dispatcher's office at the Grand Central Depot, New York. The time on the clock in the depot at East Albany corresponds exactly with the time in New York. Each one of the clocks is connected with the general superintendent's office in New York, in which the railroad time is kept on what is called the "big clock." Conductors, train men and others are compelled to keep their watches in strict conformity with the superintendent's clock. It is set by standard time, and connected with the time service department of the gold and stock telegraph. The time is distributed all over the line each week day as follows: At 10 o'clock 58 minutes and three seconds a. m., the How Railway Time is Kept.-There no in the KLVth Longress an act was passed creating a Public Land Commission to revise and codiffusion to the first the mining States and Central Depot, New York. The time on the clock in the depot at East Albany corresponds oxactly with the time in New Yorks. The time of the clock in the depot at East Albany corresponds oxactly with the interior of the clock in the depot at East Albany corresponds oxactly with the surface of the commission to revise and codiffusion and the first the clock in the depot at East Albany corresponds oxactly with the surface of the clock in the depot at East Albany corresponds oxactly with the surface of the clock in the depot at East Albany corresponds oxactly with the surface of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of the clock in the depot at East Albany corresponds oxactly with the surface of the visit of t Metals.

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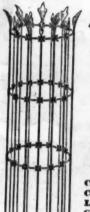
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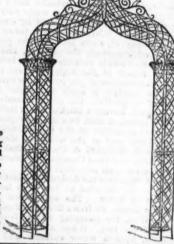
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BY OWEN W. DAVIS, JR.\*

The ore originally worked at the Katahdin Iron Works was a limonite, occurring in beds on the side of a hill, at an elevation of 200 to 300 feet above the river. Average samples of the ore show :

Per cent

The sulphur being present mainly as a sulphate. This ore was roasted in heaps, on piles of wood, and readily yielded most of the combined water and a large per cent. of the sulphur, and when fairly well roasted in this manner it produced, with 10 per cent. of lime and a hot furnace, a very handsome open-grained iron, very soft and fluid, showing silicon 2 to 3 per cent., sulphur trace too 0.07 per cent., and phosphorus 0.06 to 0.10 per cent. But the action of the furnace was irregular and unsatisfactory, changes and slips being frequent and sudden, and all the iron above the grade of the soft No. I X, above referred to, showing a lack of strength, and an unhealthy fracture not to be expected in a good charcoal iron. Occasional analyses of samples of iron sent away for test showed an excessive and unusual amount of silicon, which varied but slightly in the different The sulphur being present mainly as a sul-

samples of iron sent away for test showed an excessive and unusual amount of silicon, which varied but slightly in the different grades, from No. I to white iron.

About the year 1877 the beds of surface ore began to give out, and it was found that underlying these beds was a formation of pyritiferous rock, very easily decomposed, in which the pyrites occur not as cubical crystals, but in layers, like mica. This formation has become changed in situ to a hydrated oxide of iron, the ore occurring irregularly and without any uniformity, and the rock in many places passing imperceptibly into ore, while in others the ore rests on the surface of the rock, sharply separated. The deposit has been opened in many places within a radius of half a mile, and worked extensively in six different openings, starting in each case on the hillside, where the ground rises rapidly. In these places the ore is found mixed with the ledge to a depth of 10 to 20 feet when the "blue ledge" is ordinarily encountered, which, near the surface, is friable and soft, but at the depth of a few inches becomes hard, with a metallic ring. This kind of ore is abundant, but cara few inches becomes hard, with a metallic ring. This kind of ore is abundant, but carries more sulphur than the surface ore, and in the shape of a sulphide, which, at a red heat, cannot be reduced further than to sulphur of iron, but for its complete decomposition requires an intense oxidizing heat.

Per c		cent
Besquioxide of iron, 6: Magnesia	Sulphur Phosphorus	
	Water Metallic iron	47.6

The furnace was put at work upon this ore without our fully realizing the increased amount of sulphur present in it, and much trouble ensued. Each day's work showed nearly every grade of iron, from 1 to 6, while working on same burden, and it was found very difficult, with any heat attainable, to keep the furnace upon a grade of soft iron, a half day's run on this grade being certainly followed by sudden changes to white iron.

Every expedient known for lowering in the blast furnace the amount of silicon and sulphur in the iron was carefully tried. Limestone charges, varying from 5 to 50 per cent., were thoroughly tested, and analyses of the resulting irons showed very slight variations in the silicon and sulphur present.

present.

Mixing calcined lime with the ore made no apparent difference. The furnace boshes were then carried up from 60 to 70 degrees pitch in a stack 36 by 9 feet, and more blast added. The result was a large product (somo 15 tons daily) of an exceedingly poor iron—porous, spongy, white, with a dull, unhealthy fracture. Samples of this iron, graded according to the fracture and afterward analyzed, showed silicon and sulphur excessive. viz.:

the ore. As more uniformity in roasting was thereby obtained, a resulting improvement in the iron was noticed. At this time, in order to give the ore better opportunity for reduction, 15 feet were added to the hight of the stack, with a decided improvement in quality of iron and fuel consumption, but the iron was still unsatisfactory and the silicon obstinately high.

This was the state of affairs in the winter of 1878. It seemed apparent to the writer at that time that the outlook for the iron trade was such as to encourage the belief in better times in the ensuing spring, and te warrant some further effort at overcoming the difficulty; and it was then determined to make a thorough investigation into the causso of our trouble, in the hope of removing them.

\*Bead at the annual meeting of the U. S. Association of Charcoal Iron Werkers at Chambers, not over 8 inches by 8 inches, burg, Pa., October so, 1880.

Notes on the Desniphurization of Ore by the Westman Kiln, at Katahdin Iron Works, Me.

sulphur, showing 3 to 4 per cent. silicon, or as high as a soft No. IX that had but a trace of sulphur. The following analyses of iron, made at previous times, elucidate this

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It seemed that the heat necessary to induce the large amount of sulphur to combine with the lime as sulphide of lime and pass off in the slag was sufficient to reduce the silicon, which then united with the iron and forced the carbon (which, in a siliceous iron, would naturally assume a graphitic form) to appear as combined carbon; in short, that much of our hard mottled iron which showed 2 to 2 per cent silicon and other than the state of the

to appear as combined carbon; in short, that much of our hard mottled iron which showed 2 to 3 per cent. silicon and 0.20 to 0.60 sulphur, with carbon mostly combined, would, but for sulphur, have been soft No. 1 iron, with graphitic carbon.

Analyses of ore taken from the arches above described showed that that portion of the ore that had been directly over the wood and reached a high degree of heat had parted with its sulphur absolutely, while samples taken midway up to the top of the pilos showed relatively increasing smounts, proving that the portion of sulphur existing as sulphate had disappeared at a moderate heat, while the other compound, the sulphide, was affected only by an intense oxidising heat. How, then, to arrange it that every portion of the ore could be raised to that degree of heat necessary to break up this compound, and to do it uniformly, regularly and on a large scale, was the problem presented to us. It was believed that this could be accomplished by a calcining kiln of the general design and arrangement of the Westman kiln, so common in Sweden, and a kiln of this character was devised by Mr. Sjöstedt, assisted by our agent, Mr. George D. Colby, but designed for using wood instead of gas, as is generally the case in Sweden. This kiln is a cylindrical shaft 22 feet in hight to the filling doors, expanding in diameter from 4 feet 8 inches at top, to 10 feet at bottom; built of red brick, and lined with fire-brick to hight of 10 feet, and the whole bound together with five iron bands 4 feet wide. The base is perforated the whole bound together with five iron bands 4 feet wide. The base is perforated with six radial passages for drawing the ore, increasing in width from 2 feet 6 inches ore, increasing in width from 2 feet 6 inches at outer circumference, to 5 feet 2 inches on inner circumference; the walls of kiln at bottom being 3 feet thick, and tapering to 1 foot at top. The tops of these drawing arches are covered with heavy iron plates, above these are double the number or twelve fire arches, 20 inches wide, for receiving the wood, and opening directly into the kiln. The walls at the fire arches are 2 feet 9 inches thick, and the structure here is twelve sided, each face being covered with heavy iron plates hooked at the joints with wroughtiron rods to allow for expansion, and the sided, each face being covered with neavy iron plates hooked at the joints with wroughtiron rods to allow for expansion, and the door and ash hole being cast in the plates. Two feet above the arches are six small openings for inserting bars whenever the stock gets clinkered above the fire arches. As thus built the kiln was fired, but the ore being very friable, the draft was not sufficient, and a chimney was added with 4 feet flue, 35 feet in hight. The first results were encouraging, the roasted ore showing but 0.05 to 0.15 per cent. sulphur, and the iron made from this ore exhibiting excellent fracture with silicon down to 1 per cent. But even with the high chimney, it was soon found that the sulphur sublimed and settled back upon the ore the longer the kiln was worked, the draft being still insufficient, and the old and too familiar silicon ran up again to 3 and 4 per cent. in the iron. Samples taken at this time showed:

No. 2. 4. 4. 3. 6.

No. 2. 4. 4. 3. 6.
Silicon......3.76 3.75 3.31 3.59 1.51
Sulphur......0.13 0.08 0.17 0.13 0.09 And the kiln up to this point was a failure.

But enough had been seen of the practical working of it to warrant a belief in its complete success, if some way could be devised for carrying off the sulphur after once separated from the ore.

A property is a reference of the property of the sulphur after once a property is a reference or the property of the sulphur after once a property is a reference or the property of the prop

per cent. to 0.02 to 0.10 per cent., and under precisely similar conditions in the blast furnace as before; the silicon decreased very materially, as shown by the following:

warrant some further effort at overcoming the difficults; and it was then determined to make a thorough investigation into the causes of our trouble, in the hope of removing them.

To accomplish this, a chemical laboratory was fitted up at the works, and we were fortunate in securing the services of Mr. Ernst Sjöstedt, of Sweden, a graduate of the School of Mines at Stockholm, to conduct the investigation.

Complete analyses of ores, iron, fluxes and cinders from recent and former blasts were made, and it very soon became evident that our real antagonist had been, not silicon, but sulphur, which met us on every hand and in quantities much greater than anticipated. One analysis after another confirmed the theory that the relation between sulphur and silicon in our pig iron was very intimate, as we found that in every case where the sulphur in the iron was high—0.20 to 0.60 per cent.—the silicon was excessive—2 to 4 per cent.—and this, no matter what the grade of the iron might be, a white hard iron containing 0.60 per cent.

\*\*Read at the annual meeting of the U. S. Association of Chargool Iron Werkers at Chambers\*\*

Iron plates, cast with hole 17 inches in diameter, were set into the brickwork, square openings, 4 inches by 4 inches, being left on two sides in the outer circumference. Two railroad bars, 24 feet long, were fastened into the foundation of kiln, and passed through the openings in plates above described, and secured at top, to hold the pier firmly in place. On tep of the brickwork rests a heavy ring, cast with a flange, into which sets a wrought-iron flue pipe, 16 inches in the outer circumference of this central pier were left three rows of inches, sloping downward, so as to prevent the ore from getting into it, and, at the bottom, a clearing out door was left, covered by an arch at the outer circumference of the properties of the properties of the properties.

\*\*Read at the annual meeting of the U. S. Association of Chargool Iron Werkers at Chambers and all the properties of the properties of the

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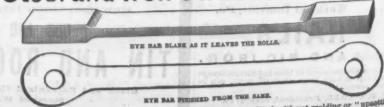
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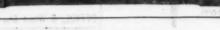
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the ore descends, it gradually parts with its water, and becomes hotter and, just in front of the fire arches, it reaches a white heat just on the point of fusion, when the sulphur is freed, and passes up into the flues of the pier, and rolls out in great volumes at top of the chimney. Passing by the fire, the ore drops below and is drawn out of the drawing doors, while still hot, and falls into troughs containing water, which removes any sulphur still left in it. As the ore is very much crumbled, it is generally charged

any sulptur still left in it. As the ore is very much crumbled, it is generally charged into the furnace while still wet, to hinder it from running down through the coal.

The ore from the kiln shows sulphur low, and uniformly so—0.03 to 0.10 per cent, and the working of the furnace is regular. Our ordinary charge is:

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takes high rank in actual use, and as shown by the following comparative analyses of samples, most of them taken from different wheel foundries by the writer, and analyzed by Mr. Sjöstedt or Mr. Colby: Combined carbon... Graphitic carbon... Silicon... Sulphur... . 0.75 0.74 0.48 0.68 0.73 0.60 . 1.84 2.63 2.49 3.07 2.22 2.84 0.65 1.24 0.61 1.01 1.58 0.75 0.04 0.04 0.03 0.03 0.03 0.049 0.10 0.21 0.05 0.03 0.03 0.049 0.05 0.01 0.01 0.01 0.31 0.07

For the past two months our kiln has roasted an average of 38.75 tons of ore daily, at a cost of 47.70 cents per ton, as follows:

Or, 47.7 per ton. With ore thus reasted, we find little difficulty in keeping the furnace in good condition, and with excellent results, as our product for the past cellent results, as our product for the past six weeks has averaged 108.19 tons per week, of Nos. 3, 4, 4½, and 5 iron, with average fuel consumption of 94.88 bushels (of 2688 cubic inches) to the ton of iron on an ore yielding 47.35 per cent. iron, and for the past week we made 104½ tons, with a consumption of 88.4 bushels of coal on a 48.3 per cent. ore, or about I ton of iron to two cords of wood.

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Information is so frequently sought about the legal effect of negotiable instruments and, accepted or indores do Sunday, that im may obtain the legal effect of negotiable instruments and, accepted or indores do Sunday, that im may obtain the legal effect of negotiable instruments and, accepted or indores do Sunday, that im may obtain the legal effect of negotiable instruments and, accepted or indores do Sunday, that im may obtain the legal effect of negotiable instruments and, accepted or indores do Sunday, that im may obtain the legal effect of negotiable instruments and, accepted or indores do Sunday, that the was accepted or indores do Sunday, that the was accepted or indores do Sunday, that is may obtain the legal effect of negotiable instruments and, acceptance of the law of the country, as well as of Canada—the transactions exist, they are only statutory. In England there also on Sunday is not prohibited. Where I law of the law of the acceptance of a build so Canada—the transaction of Scular business of the law of the sunday dating to the law of the law of the law of the law of the sunday dating the law of the law o

Solid Steel Calk Horse and Mule Shoes.

These shoes are made of superior iron, completely finished and ready for cold sheeing; have clip and solid steel calk. The holes are nunched through at the proper angles and free from burrs. Same number of Shoes per keg as in kegs of unfinished shoes.

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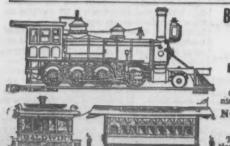
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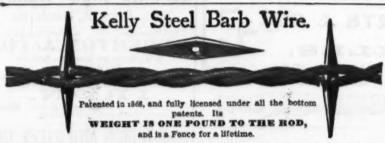
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given may still he recovered in some other

given may still he recovered in some other form of action.

Even where a contract prohibited by statute is entirely closed on Sunday, the weight of authority appears to be in favor of the contention that it is rendered valid by any subsequent act of the parties ratifying it on another day. The indorsement of a bill or note on Sunday stands on the same footing as the making or drawing of it. Where, however, a bill or note made or drawn on Sunday is indorsed on a week day, the indorsee may recover the amount, provided he have no notice of the fact. If he have notice, he stands in no better position than his transferer. It is necessary to bear in mind that the date is not an essential part of a negotiable instrument. There may be a good bill or note without a date; nor is an instrument rendered void by having a wrong date. What is prohibited by these statutes is not the dating on Sunday, but the making or accepting on Sunday, but dated on another day, may recover on it. Whether he may recover on a note made and dated on Sunday, when he has no notice of the fact, but might have acquired it by reference to an almanac, does not appear to have been decided, and in the absence of authority cannot be considered free from doubt.

#### Mathematics for Mechanics.

The saying that practice makes perfect implies that something else is wanted besides practice, something which practice crowns and completes. That something is theory, or a knowledge of the principles on which the practice is

or a knowledge of the principles on which
the practice is based.

Mechanical operations draw largely on the
various departments of mathematics for their
principles. Arithmetic, algebra, geometry
and the calculus are constantly levied upon
and often taxed to their utmost to supply
the demands of mechanics. And these demands are sometimes so tremendous that
even the vast resources of modern mathematics cannot satisfy them. The drafts
of the physical on the abstract sciences frequently resemble what is known as "a run
on the bank," when the funds run out and
the bank has to close its doors. In other
words, physical problems are constantly
arising that baffle the profoundest mathematical analysis.

arising that baffle the profoundest mathe-matical analysis.

But while it is not necessary or possible for every one to be a great mathematician, every mechanic may get a vast deal that is needful for him from the field of mathe-matics, and that not very abstruse or dif-ficult; and the mechanic who is wholly ignorant of mathematics is like a blind man groping his way. He may tread with confidence a familiar, well-beaten path, but the moment he swerves in the least from it, in any direction, he is at sea. If a mechanic would not wish to be a mere automaton, he should be fairly acquainted with the following subjects.

would not wish to be a mere automaton, he should be fairly acquainted with the following subjects:

I. Arithmetic.—This is learned by every one at the common school; but in after life, without practice, its rules and processes easily slip from memory. Everybody, of course, should be familiar with the four common rules—addition, subtraction, multiplication and division—and there are certain other rules that a mechanic especially should be at all times up in. He should be perfectly at home in both vulgar and decimal fractions and be able to handle them like an expert. He may often have occasion to extract square and cube roots, and should be able to do so with facility.

2. Mensuration.—Every mechanic should know how to measure and calculate the areas of common plane figures, particularly those of the triangle and circle. He should also know how to measure and compute the surfaces and contents of the commonest solids, as the parallelopiped, pyramid, cone, cylinder and sphere.

3. Algebra.—He should know as much of algebra as to be able to solve simple and quadratic equations. He should also be able to use the binomial theorem. And especially he should be thoroughly familiar with algebraic formulæ and transformations, as he will constantly meet them in books if he attempts reading; and he should be able

will constantly meet them in books if he at-tempts reading; and he should be able readily to calculate the value of any expression when the letters in it are assigned nu-

4. Logarithms.—Without necessarily being acquainted with their theory and construction, he ought to be able to use a table of logarithms.

logarithms.
5. Geometry.—A knowledge of the principal properties of plane figures would be highly useful; also an acquaintance with the geometry of the most familiar solids, as the cylinder, sphere, &c.
6. Trigonometry.—The meaning, at least, of the terms sine, cosine, tangent, &c., should be understood; also the solution of

plane triangles.
7. The Calculus.—The differential and

integral calculus is the powerful machine with which mathematics achieves its greatwith which mathematics achieves its greatest wonders. It is commonly treated as something too lofty, too sublimated, to be within the comprehension of ordinary people. This is a mistake. The radical and essential ideas of this great two-fold calculus are easy of comprehension; and while it covers an illimitable field, there are parts of it—and those the most useful—that can readily be mastered by any one with a very small stock of algebra and geometry at command. stock of algebra and geometry at command. No mechanic with such a moderate equipment need dread the calculus. He can acquire some of its best formulæ with ease, and bear in mind that the date is not an essential part of a negotiable instrument. There may be a good bill or note without a date; nor is an instrument rendered void by having a wrong date. What is prohibited by these statutes is not the dating on Sunday, but the making or accepting on Sunday. It is perfectly clear that an innocent holder of an instrument really made on Sunday, but dated on another day, may recover on it. Whether he may recover on a note made and dated on Sunday, when he has no notice of the fact, but might have acquired it by and dated on Sunday, when he has no notice of the fact, but might have acquired it by reference to an almanac, does not appear to have been decided, and in the absence of authority cannot be considered free from doubt.—Monetary Times.

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#### Growth of Inventions.

Prof. Stanley Jevons, ten years ago, found allusions to a magnetic telegraph running through many scientific or quasiscientific works of the sixteenth and seventeenth centuries. The poet Addison speaks of "a chimerical correspondence between two friends by the help of a loadstone." Sir Thomas Browne, in his "Pseudodoxia Epidemica," says: "The conceit is excellent, and if the effect would follow, somewhat divine;" and he speaks of it as a conceit "whispered thorow the world with some attention, credulous and vulgar auditors readily believing it, and more judicious and distinctive heads not altogether rejecting it." Sir Thomas, it would seem, suomitted the matter to experiment, but found that, although the needles were separated but half a span, when one was separated but half a span, when one was moved the other would stand like Hercules' pillars. Joseph Granville, in his "Scapsis Scientifica" (1665), discusses the objections of Sir Thomas Browne, and concludes that "there are some hints in natural operation that give us probability that is feasible." that give us probability that is feasible." Glanvill, more than 200 years ago, said: "Though this pretty contrivance possibly may not yet answer the expectation of inquisitive experiment, yet 'is no despicable item that, by some other such way of magnetic efficiency, it may hereafter with success be attempted, when magical history shall be enlarged by riper inspection, and 'tis not unlikely but that present discoveries might be improved to the performance." The earliest book in which Mr. Jevons found allusions to a magnetic telegraph is the "Natural Magic" of Baptista Porta, published in 1589. In the seventh book he describes the "wonders of the magnet," saying in the preface, "I do not fear that, with a long-absent friend, even though he be confined by prison walls, we can communicate what we wish by means of two compass needles circumeven though he be confined by prison walls, we can communicate what we wish by means of two compass needles circumscribed with an alphabet." In the eighteenth chapter of the same book he describes the experiment of putting a magnet under a table and moving thereby a needle above the table. This experiment, as Porta remarks, was known to St. Augustine, and an exact description will be found in his "De Civitate Dei," a work believed to have been begun A. D. 413. It seems probable that this passage in St. Augustine suggested the notion either to Porta, Bembo, or some early Italian writer, and that thus it came to be, as Sir Thomas Browne says, "whispered thorow the world." Mr. William E. A. Axon refers to the passage in Strabo, in which he supposes the loadstone to have such virtue that "if two needles be touched with it, and then belanced on separate pivots, and the one be turned in a particular direction, the other will sympathetically move parallel to it. He then directs each of these needles to be poised and mounted on a dial having the letters of the alphabet arranged around it, Accordingly, if one person has one of the dials, and another the other, by a little prearrangement as to details a correspondence can be maintained between them at any distance by simply pointing the needles to the letters of the required words."—Design and tance by simply pointing the needles to the letters of the required words."—Design and

#### An Englishman on the American Iron Trade.

As an example of the loose way in which statistics are occasionally handled, the following is interesting. It is a letter from Mr. A. Armour, of Liverpool, printed in the London Times. The ease with which production of pig and importations of all kinds of iron are jumbled together is particularly payed.

of iron are jumbled together is particularly novel:

At a period when the future of the iron trade in England is so largely dependent on a resumption of a large demand from the United States, it may be well to examine the figures relating to the American iron trade with a view to see what margin there is left for the introduction of English iron into that country.

country.

The following figures for 1878 and 1879 show the extraordinary start taken by the trade after the depression of 1878 and pre-

1878. 1878. 1879

Production of pig iron. 2,577,361 3,070,875

Imports of iron of all kinds 115,626 685,622

Stocks reduced in makers' 07,386 432,821 4,193,388

The difference here shown of over 1,400,-The difference here shown of over 1,400,000 tons does not represent that amount of increased consumption, as stocks which were reduced to the smallest compass in 1878 must have swollen out very considerably in 1879, and it is well known that a large proportion of the imports were warehoused at the various ports. It may be fairly assumed, however, that the consumption had increased 1,000,000 tons, and may be fairly estimated at about 3,750,000 tons.

With respect to the year 1880 we have now sufficient data upon which to form a

now sufficient data upon which to form a pretty fair estimate of the production and imports. The following return of the number of furnaces in blast is supplied by The

January 1 ... 384 October 1 ... 434 April 2 ... 431 July 2 ... 433 443

The average output of these furnaces is estimated at 10,000 tons per annum, which appears a moderate estimate, as the average production of each furnace in the United Kingdom was 12,063 tons in 1879. According to the returns of the United States Bureau of Statistics, the imports of foreign iron of all kinds into the United States for the eight months ending August 31, was 1,437,414 tons.

Total..... 5,345,329

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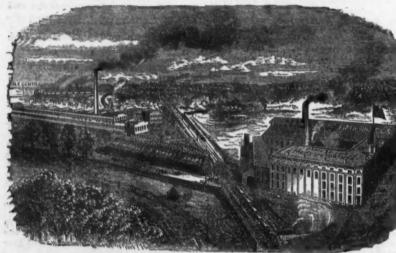
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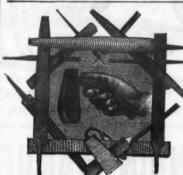


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THE ANSONIA STOVE REST.



STOVE RESTS are designed to

The year opened under peculiar circumstances. Statistically the position of the iron trade in many of its principal departments was by no means favorable, yet it was shortly proven that figures have little weight when other conditions are favorable weight when other conditions are tavorable to a rise. On January I there were 931 blast furnaces in existence and several others in course of being constructed, the number in operation being 493. The stock of pig iron was then set down at 1,027,886 tons, of which 745,000 tons were in Scotland, in Connal's stores and makers' own read. This constructs of iron was yards. This enormous reserve of iron was greater than had ever previously existed. Its bulk gave much weight to the views of those who contended that it would be implace so long as the stock remained unreduced and the production on so large a scale.

The sequel showed, nevertheless, that a remarkable advance did almost immediately markable advance did almost immediately take place—a circumstance which may well be remembered at the present time when the ruling conditions of the market are not wholly dissimilar from what they were a year ago. Just prior to the end of 1879 marked bars had gone up to £8, and as that were cleed there, was a report that a furmarked bars had gone up to 25, and as that year closed there was a report that a further rise was highly probable—a rumor which was not generally credited at the time, but which was shortly seen to be well founded. The January quarterly meetings were well attended, and were productive of much excitement, inasmuch as an official diverse of £1 on the list price of £1 of Stafford. much excitement, inasmuch as an official advance of £1 on the list price of Staffordshire marked iron was confirmed thereat, thus bringing bars to £9 per ton, with sheets, plates, &c., in proportion. At this time, it should be noted, there were 100 furnaces in blast in Scotland, and No. 1 makers' brands were selling at 83/, and thereabouts, per ton. In Cleveland there were nearly 300,000 tons of pig iron in stock and 96 furnaces in blast, No. 1 foundry being 58/6 and No. 3, 53/6 per ton. The year 1880 opened with a general feeling of buoyancy in the iron markets—a feeling which was, perhaps, feverish in many quarters, was, perhaps, feverish in many quarters, and which lent itself to the many possibilities of speculation and overtrading. From the very beginning of January all classes of iron were held for an early rise, and as the month progressed the tone grew firmer, and by the mid-monthly date the markets were

with England, unless our prices fall to low as to arrest production, at was the case to ward the close of 1870.

The British Iron Trade of 1880,

(By Our English Correspondent.)

Loudon, Dec. 14, 1884.

The historian charged with the task of recording the more salient points of variative and its allied induction that the state of recording the more salient points of variative and its allied induction that the state of recording the more salient points of variative and its allied induction that the state of recording the more salients of the trade and its allied induction that the state of recording the more salients of the trade and its allied induction that the state of recording the more salients of the trade and its allied induction that the state of recording angel. On the other hand, a certain portion of the twelvemonth has been charge in the state of the American order, but, fortunately, on a mall scale only. It would be rash and inaccurate to say that 1880 has been a very notable year in our industrial annais, but is the state of the s ment was announced, and made it clear that nothing but an extraordinary external demand could prevent business from falling flat for some time thereafter. As is now well known, the shipping demand did not improve, and it is a matter of almost contemporary history that a serious decline ensued. In Staffordshire and elsewhere iron could be had at almost any price, and many of the works were even then but indifferently engaged. Even hardwares felt the influence of the change, and discounts began to show much expansive elasticity. SECOND QUARTER.

The end of March and beginning of April brought the Easter holidays and an almost unprecedentedly keen electioneering campaign, so that much of the attention of busipaign, so that much of the attention of business men was diverted from its proper channels. Early in April there were 114 Scotch furnaces blowing and 438,927 tons in Connal's stores, Gartsherrie No. 1 being 64/; Coltness, 65/6; and Eglinton 60/. Cleveland pig was quiet at 60/ for No. 1, and 52/6 for No. 3. Hematites, with 73 out of 81 furnaces in the West ccast at work, were weaker at 116/@ 110/. In the whole of Great Britain there were 948 furnaces built, of which 599 were in operation, or about 100 more than at the commencement of the war. The April quarterly meetings built, of which 599 were in operation, or about 100 more than at the commencement of the year. The April quarterly meetings were steady, and there was no change in list rates, marked bars remaining at £9, in spite of the undercurrent to which they were studyected. Staffordshire sheets were £10 @ £10. 5/, hoops £9, and other kinds of finished iron in proportion, with hot-blast pig £4 to £4. 10/. In reality, however, prices were 10/ to 15/, weaker on the quarter, and there was no great amount of confidence as to the future, although it was hoped that the election of a new and powerful ministry would tend to expand and solidify trade. In Cleveland 110 furnaces were blowing, the March stocks althowed a decrease of 10,790 tons, and price were fairly steady, at 60 / for No. 1, and 56/ for No. 3. Hematites were quiet at prices ranging from 97/ to 120/ per ton. Scotch pig was irregular at 55/ for warrants, and 64/ to 65/ for best makers' No. 1 brands. The remainder of April saw a further gradual decline of prices, with considerable disorganization in many quarters, abundant underselling, and a strong cry of overproduction. In Staffordshire several blast furnaces were set down. At the commencement of May the markets generally were feeble, Scotch warrants being 46/9 to 48/; Gartaherrie No. 1, 55/; Coltness, 56/6; Eglinton, 50/; Cleveland No. 1, 45/; No. 3, 39/; Hematites, Cleator, 115/; and Workington, 80/ per ton. This was, perhaps, the lowest level reached in some respects for the time being, as a slight improvement then became apparent. On May 10, 115 THE ANSONIA STOVE REST.

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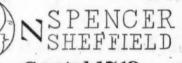


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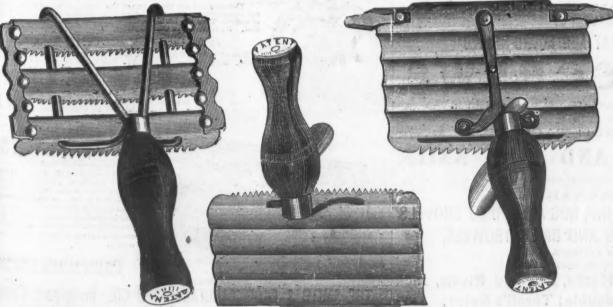
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showing a decrease of stocks by 14,000 tons in April. No. I was only 45/, however, and No. 3 had dropped to 39/. In Staffordshire matters did not progress, and toward the end of may a reduction of 20/ in marked iron was declared by Lord Dudley and Messrs. Barrows, whose example was speedily followed by the other list houses. This made bars £3, and other sorts in proportion. Hardwares also fell, either officially or less directly. The effect of this change, although it had been expected, and probably largely discounted, was to further depressiron on all sides, so that May closed and June began under anything but bright conditions, with very few exceptions. Early in ditions, with very few exceptions. Early in June Scotch warrants stood at 45/3 to 44/7 —the positive minima of the year; Gart-sherrie No. 1, 51/; Coltness No. 1, 55/6; and Eglinton, 47/. West Coast hematite ranged from 68/6 to 82/ for mixed numbers, but these brands were steadier than those of out these brands were steadier than those or ordinary pigs, owing to the fact that the Bessemer works were ascertained to be very well engaged. Cleveland was moderately good by reason of the excellent shipments, but No. 1 only mustered 41/, and No. 3, 36/—figures which presented startling contrasts with those of a few months before. rasts with those of a few months before. Finished iron and hardwares were similarly weak, and it was quite evident that published quotations were far from being generally adhered to. As June advanced a slight change for the better was seen, especially at Glasgow, where the influence of good shipments and a growing local demand had an inspiriting tendency. By the end of the month warrants had attained 48/6 @ 49/11; Gartsherrie was 54/; Coltness, 56/; Eglinton, 51/; Cleveland No. 1, 43/6; and No. 3, 38/6; with hematites, 60/@ 75/ per ton. The prevalence of lower prices for materials had, nevertheless, induced reductions in many kinds of hardwares, as well as in nuts, bolts, washers, &c., to which makers were impelled by the force of competition and the relative poverty of the consumptive demand.

July saw a little further improvement at Glasgow, as well as additional orders in Staffordshire and other ironmaking centers. The tin-plate workers, it may be remarked, now resolved to limit their production, in now resolved to limit their production, in the hope of sending up prices, but as the premises subsequently failed, so the desired result has not been secured. Opening with more confidence, the markets grew more cheerful as July advanced, the better state of feeling being confirmed by the excellent returns of the Board of Trade and the augreturns of the Board of Trade and the augmented shipments from the Clyde and Tees. The quarterly meetings were very fully attended, and at some of them a good business was done. Staffordshire cinder pig was quoted 42/6; part mine, 50/@ 60/; all mine, 65/@ 75/; hot blast, 70/@ 75/; and cold blast, 75/@ 85/, at which prices many sales were made. Finished iron was unaltered on the list basis of £8. At the same time, Scotch warrants were strong at 52/, and shipments being good, makers' brands were steady at 56/6 for Gartsherrie No. 1 and 57/6 for Coltness. In Cleveland there were 110 furnaces at work, as against 84 on and 57/6 for Coltness. In Cleveland there were 110 furnaces at work, as against 84 on the corresponding date of 1879, No. 1 25/ng 46/ and No. 3 41/ per ton. Hematites were firm at 72/@80/. The favorable Board of Trade returns for the month of June confirmed the more hopeful feeling, and the remainder of July passed over with a fair amount of strength on all sides, and a disposition to regard another upward movement as being a probable eventuality. The aversition to regard another upward movement as being a probable eventuality. The average selling price of Staffordshire iron during March, April and May, it may be remarked, was announced as having been £7. 17/10 per ton—a price which allowed wages to remain at 8/6 per ton, and so contributed to settle the market. This steadier feeling was also enhanced and confirmed toward the end of July by the finer weather and the consequent better agricultural prospects, which were then reported to be very good in many parts of the country. These prospects were, as we now know, not universally fulfilled in the event, but they were a feature of the period under notice, and must, therefore, be touched upon. For three months ending June 30 the average selling price of North of England manufactured iron was £6. 10/9, plates having again taken the lead. August came in quietly, with no excitement in any direction, but with a fair average husiness on all sides. ly, with no excitement in any direction, but with a fair average business on all sides, and a noticeable buoyancy in many quarters. Scotch warrants were about 54/7, and the comparative shipments were good. and the comparative shipments were good. Gartsherrie, No. 1, was 58/; Coltness, 59/; and Eglinton, 55/6. In Cleveland the market was very good, No. 1 being 49/, and No. 3, 44/, with very large shipments. At Sheffield, also, a better feeling began to be observed, with fewer complaints from manufactures and fuller amplement for the ufacturers, and fuller employment for the workmen. In the Staffordshire and other

prices, although by the end of August there prices, although by the end of August there were only 42 out of \$28\$ furnaces at work in Scotland. In Cleveland, on the other hand, out of 19 works 18 had every blast furnace in operation. Throughout the North of England generally at this time there was much activity, a state of affairs which may be broadly stated to have continued up to the present time. Hematites were also firm, owing to the better condition of the rail trade. The beginning of September brought great heat, which somewhat hindered ironworking operations, although it was of great great heat, which somewhat hindered ironworking operations, although it was of great
service to the farmers, and gave those dependent upon them more confidence as to
the outcome of the harvest, which by that
time had been satisfactorily completed in
most of the Southern, South Eastern and
Western countries. In Scotland the miners'
stike had been defeated, and the men were
gradually resuming work, a circumstance
which naturally enabled many of the blas
furnaces to be restarted. This, again, affected prices, and warrants dropped to
52/10½, Garthsherrie, No. 1, being 61/, and
other No. 1 brands in proportion, these irons
being relatively scarce for a time after the
termination of the strike. Cleveland pig
was very steady, although the August returns showed as increase in stocks of 16,000
tons, as well as an augmented production. was very steady, although the August returns showed an increase in stocks of 16,000 tons, as well as an augmented production. From Sheffield the contemporary reports still showed signs of improvement. Stafford shire was very quiet, and it was obvious that the amount of employment in hand was below the producing capacities of the works in that district. Some trouble with the wrought nailers of the Black Country was threatened, but was obviated, for various somewhat conflicting reasons. The remainder of September was characterized by quietude in all directions, although Scotch shipments were good, and a heavy turnover existed in Cleveland, as well as on the West Coast. The hardware industries were also beginning to improve, with some irregularity, it is true, but still with a better tendency than for a long time before. Toward the end of the month 82 furnaces were in blast in Scotland, a resolution to formally restrict the output by one-third having been overruled, owing to the necessities of individual producers. Warrants were 49/9 (#48/5, and No. 1 brands on the basis of 58/ for Gartsherrie. Cleveland pig had also declined to 43/6 and 38/6 for No. 1 and No. 3 respectively, while hematites were negotiable at 70/ (##4776.

\*\*FOURTH QUARTER.\*\*

FOURTH QUARTER.

FOURTH QUARTER.

Early in October the returns of the Staffordshire Wages Board showed the selling prices for the quarter to have been under £7 per ton, thereby bringing down wages by 1/a ton on puddling and 10 per cent. on mill work, and encouraging an expectation of a new drop in the list rates—which anticipation was shortly borne out by the facts of the case. In the rail trade a decidedly stronger market had by this time begun to be noted, and makers were somewhat strengthened in their position by the receipt of an order at Sheffield from Mr. Vanderbilt for 15,000 tons of steel rails for the United States. Other orders have been placed by the same buyer in Germany. In Scotland there were 104 furnaces blowing and 474,765 tons in store, while in Cleveland 11,000 tons were found to be added to the reserve stocks during September. Prices, consequently, drooped in both localities Scotch warrants to 50/ and Cleveland, No. 3, to 39/6. In the second week of the month of October the list houses notified the long-expected reduction of 10/ in marked iron, thus placing all that class of here at 3, to 39/c. In the second week of the month of October the list houses notified the long-expected reduction of 10/ in marked iron, thus placing all that class of bars at £7. 10/. At the quarterly meetings this course of action was confirmed. It was also shown that of 146 furnaces built in the Seuth Staffordshire district only 45 were in blast, thus confirming the impression that the oldest irenmaking district of the country was much worse off for work, as regards crude irons, than most of its younger competitors. Much interest was excited in the third week of October by the announcement that the Thomas-Gilchrist dephosphorization process (which had previously been the subject of much discussion) had been made a "technical and commercial success" at the Eston Works of Bolckow, Vaughan & Co. (Limited). This announcement tended to raise the hopes of the Cleveland smelters, and to correspondingly depress the producers of hematite pigs. In neither case, however, has the effect proved lasting, although the new process seems to be an unquestioned success. The change, it is evident, will progress slowly and make and the servicent, and the success. The change, it is evident, will progress slowly and make and the servicent will progress slowly and the servicent will progress slowly and make and the servicent will progress slowly and the servicent will progress slowly and the servicent will progress slowly and the servicent servicent will progress slowly and the servicent will progress slowly and the servicent ser unquestioned success. The change, it is evident, will progress slowly, and may not be at all revolutionary in its bear-ings. The official returns for the September quarter showed the net average sell-ing price of North of England manufactured ing price of North of England manufactured iron to have been £6. 7/1, plates being again far ahead. At the commencement of November large orders for iron ships were placed in Scotland and in the North of England, which caused the plate mills to be almost inundated with orders, on which they are still employed, and which will afford them work for some months ahead. With the incoming of the penultimate month of the year there were 118 furnaces blowing in Sectland workmen. In the Staffordshire and workmen. In the Staffordshire and workmen. In the Staffordshire and the staffordshire and workmen. In the Staffordshire and the stafford the stafford in the stafford the stafford the stafford the stafford the stafford to stafford the stafford t producers. The other list houses did not follow suit, as had been generally anticipated, but it was subsequently ascertained that some, at least, of these firms gradually discounted the alteration by means which they seemed to prefer to an open declaration of a similar reduction. Their official action in the matter, as will be seen subsequently, came much later on. The excellent Board of Trade returns for July again kindled a hopeful feeling in the minds of investors, and the first week of August saw Scotch warrants at 54/3 to 55/6; Gartsherrie, No. 1, 59/; Coltness, 59/; Cleveland, No. 1, 50/, and No. 3, 45/, with 112 furnaces blowing, and West Coast hematites stronger at 80/ to 85/ per ton. In Scotland, it is true, a cloud soon arose in the shape of a strike So/ to 85/ per ton. In Scotland, it is true, a cloud soon arose in the shape of a strike of miners in Lanarkshire for an extra 1/ per diem, which speedily attained such proportions that 10,000 men were out and 20 furnaces were thrown idle, the iron-masters having resolved to resolutely resist the proposed advance in wages. Contrary to general expectation this dispute did not, at any period of its duration, do much in the way of sending up

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The Mice so in at a rapid rate, And each one sets it for his mate.

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Formerly manufactured by CLAUDIUS JONES & CO.,

At Bridgeport, Conn., Have Removed to ERIE, PA.

This is the most successful Rat and Mouse

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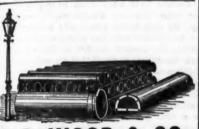
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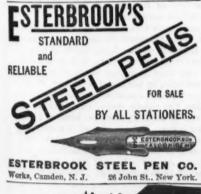
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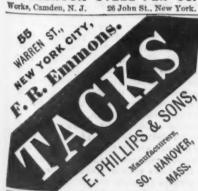
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B represents that part of the packing which, when in use, is in contact with the Piston rod.

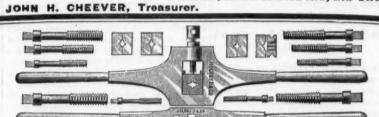
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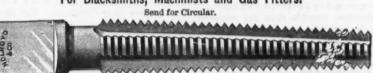


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Rise or Fall. Price Duration of quota-

Man ar dr	amo or real.	Decird.	tion.
1871, Jan. 1 1871, Sept. 7 1871, Oct. 15 1872, Jan. 1 1872, Feb. 3 1872, April 11 1872, May 16	rise 10/ 11 10/ 14 40/ 12 20/ 11 10/	£ 8 % 9 xr r2 12 12 13 14 13	Weeks, 25 25 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
1872, June 20 1872, June 27 1872, July 11 1873, Oct. 3 1873, Oct. 31 1873, Feb. 13	# 20/ # 20/ fall 40/ # 40/	14 15 16 14 12 13	1 2 1 2 1 4 2 1 4 4 4 4 4 4 4 4 4 4 4 4
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1880, May 20, 1880, July 29 1880, Oct. 7	fall 20/ partial fall 20/	8 7 1/4 7 1/4	19 19

PRICES OF SCOTCH PIG IRON.

	Price of Scotch pig per ton.	Tons in stores only.	Scotch fur. in blast.	Price of Scotch pig	Tons in stores only.	Scotch fur. in blast,
February 6. March 5. April 2. May 7. June 4. July 2. August 6. September 3. October 1. November 5. November 5.	55 0 46 9 45 3 49 2 55 4 53 4 50 1	425,072 438,341 443,883 438,029 439,181 444,239 448,494 455,342 467,899 473,619 477,067 481,543 480,460	113 114 115 116 116 117 32 95 119	42 534 43 9 42 7 42 3 41 7 40 9 41 3 45 3 58 6 54 4 58 456	207,972 921,433 837,177 856,537 968,519 277,802 290,023 400,735 318,350 354,591 389,617	91 87 89 90 86 89 90 90 90 95 99

CLEVELAND PIG IRON, 1880

Date 1880.	Pri	ces.	Furnaces blowing.	Aj.	
	No. 1.	No. 3.	Furn	Sto	
January 1	58/6	53/6	96	282,886	
10	62/6	57/6	97		
17	68/0	63/0			
February 1	67/6	69/6			
20	70/0	63/0			
March I	70/0	69/6	****		
12	67/6	58/0			
April a	60/0	52/6	****		
9	60/0	56/0	IIO		
23	45/6	39/0			
May 8	45/0	39/0	111	243,905	
15	43/6	37/6	****	*******	
June 5	41/0	36/0	****		
19	43/0	38/0	****		
July	43/6	38/6		*******	
10	40/0	41/0	110	\$ \$53,743	
August 3	49/0	44/0		*******	
10	50/0	45/0	113		
September 10	47/0	42/0	****	*******	
28	43 6	38/6		******	
October a	33/0	40/0	****	*******	
16,	44/6	30/6	118	298,928	
November 1	44/6	39/6	118	312,125	
December 1	45/0	40/0	****	******	
13	44/0	39/0	****		

WEST COAST HEMATITES, 1880.

Date, 1880.	No. r.	No. 2.	No. 3.
Jan. 1		127/6	195/0
Feb. ICleator		132/6	130/0
x4Cleator		130/0	129/0
Mar. I Cleator		128/0	126/0
15Cleator	135/0	134/0	123/0
April 5 Cleator	116/0	113/0	110/0
12Cleator	131/0	120/0	119/0
12Workington	89/0	88/0	87/0
May 3 Workington	80/0	79/0	78/0
3Cleator		114/0	113/0
17Cleator		96/6	95/0
17. Workington		66/0	65/0
June 7 Workington	63/6	69/6	61/6
7Cleator		81/0	80/0
28Cleator	75/0	74/0	93/0
28Workington		60/0	. 59/0
July 5 Workington	59/0	57/6	50/0
5Cleator		67/6	65/0
Aug. 7. Cleator	85/5	80/6	80/0
7 . Workington	81/0	80/0	79/0
Sept. 12 Workington		72/0	71/0
28. Cleator		70/0	77/6
28. Workington		70/0	74/0
Oct. 11Workington	68/0	67/0	66/0
iiCleator	75/0	72/6	73/0
Nov. 1. Cleator		71/0	70/0
1Workington		65/0	64/0
Dec. 13. Workington	66/9	65/0	64/0
12. Cleator		74/0	70/0

Furnaces blowing in December, 74 out of 8:

1	HIGHEST AN	D TOWER	r Pali	UEB.	_		
	Article.			Lowest price and date.			
ı		£	s. d.	£ s.	d.		
Н	Scotch warrants Gartsherrie No. 1	Jn. 14. 0	73	Jun. 4.00 44	1		
۱	Gartsherrie No. z	Jn. 15. 0	87 6	My . 28.00 51	ć		
1	Eglinton No. 1	Jn. 16, o	80 o	My. 28.co 47			
	Eglinton No. 1 Cleveland No. 1	Jn. 16, o	68 o	My. 28.00 41			
	Cleveland No. 3	Jn. 17. 0	63 0	My . 28.00 36			
	Hematites (Cleator)	Jn. 26. 0	¥35 6	July 3.00 70			
	Hematites (Working- ton)	100000	1 777	The second second			
١	ton)'	Jn. 26, 0	120 0	July 3.00 59			
1	Staffordshire hot blast	Mrch. o	100 0	July 3.00 70	0		
ı	Staffordshire c'ld blast	Mrch. o	120 O	July 3. 7 10	0		
ı	Staffordshire marked						
ı	bars	Mrch. 9	0 0	July 3. 7 5	0		
	Staffordshire hoops	Mrch. 9	0.0	July 3. 7 co	0		
ı	Staffordshire sheets (singles)						
	(singles)	Mrch. xx	00	Aug 4 10			
١	Iron rails	Feb10	5 0	June 4 10	0		
	Steel rails	Feb12	0.0	June 14 14	. 6		
ı	Tin plates, I. C. coke	Jan00	30 0	June 18 19			
Į	Tin plates, I. C. char-						
1	coal	Jan00	35 0	Jun. 5.56 co	0		
1	Copper, Chili bars Copper, best selected.	Fb. 7.73		Jun. 5.63 00			
١	Copper, best selected.	Fb. 7.8z		Jun. 5.69 00			
1	Tin, fine foreign	F. 10.103	0.0	Jun. 5.77 00	9		
1	Tin, English Spelter	Fb.7.103	0.0	De. 11.15 17			
1	Spelter	FD.21.21		Jun. 5.14 15			
1	Lead, English	FD. 7.19		Nv. 28.63 00	0		
1	Antimony	Mr.2073	10 0				

PRICES OF MERCHANT BARS AT LIVERPOOL.

Liverpool being the principal port of shipment for English bars, it is interesting to have the following table, showing the fluctuations in prices there during a series

- 1	or years:		
	Year.	£ s. d.	£ s. d.
•	1870	6 15 O	6 17 6
-	1871	6 25 O	8 15 0
- 1	1872	8 15 0	13 00
	1873	11 10 0	13 00
	1874	8 15 0	12 0 0
	1875	7 10 0	8 15 0
4	1870	6 x2 6	7 10 0
1	1877	6 00	6 12 6
	1878	5 12 6	6 00
he .	1879	5 50	5 00
	18904444	7 10 0	9 10 0

In the early years of the present century (1806) merchant bars at Liverpool reached as high as £17. 10/ per ton, from which price they fell gradually to £8. 15/ in 1817. In 1818, however, £13 was recorded, and £14. 11/ in 1825. Thereafter, down to 1845, the quotations varied from £11 to £4. 15/, the latter figures being recorded in 1844. From 1839 to 1873, £10 per ton was never exceeded and rarely approached, while, on the other hand, £5 was not reached from 1844 to 1879, the average prices being between £5. 10/ and £8—much the same, indeed, as is the present range of quotations. course of every-day business, the appended table might advantageously be preserved for reference: is the present range of quotations.

> Ninety Miles an Hour Between Philadelphia and New York.

At a recent meeting of the Franklin Institute in Philadelphia, W. Barnet Le Van read a paper on "Ninety miles in 60 minutes; or, how to accomplish the distance between New York and Philadelphia in one hour." It was a continuation of one read by him some time ago on high railroad speeds, and was intended to show the difficulties in the way of manifest trains at this botheen New York and Philadelphia in one hour." It was a continuation of one read by him some time ago on high railroad speeds, and was intended to show the difficulties in the way of running trains at this high speed at present, and how they could be overcome. In the paper the distance in an air line between New York and Philadelphia was stated to be 80.9 miles over a comparatively level country. The existing roads are far from being straight. On the Pennsylvania line, in the 88.4 miles between Philadelphia and Jersey City there are 84 curves (15 in the 15 miles between Germantown Junction and Schenck's). The greatest length of straight track between Philadelphia and Trenton does not exceed three miles, and the greatest in the entire road does not exceed 10 miles. The Pennsylvania Railroad is not responsible for this condition of the read, but has, in fact, done much to straighten the line, and, notwithstanding these drawbacks, runs trains on the road at the rate of 50 miles per hour. On the Bound Brook route there are 43 curves, one on the bridge crossing the Delaware River, which has a radius of 2865 feet, is 1837 feet long, and ascends 19 feet to the mile. The greatest stretch of straight track is from Skillman's east—14 miles. To compensate for the centrifugal force tending to throw the cars from the track when running at high speeds on curves, the outer rail has to be raised. On the Pennsylvania road the super-elevation is 1 inch for each degree of curvature up to 5 inches, which is the limit. The speed must be reduced beyond that to correspond with the curve. This is one of the limitations put upon high speed on existing roadways. Mr. Le Van considered others at great length, and summed up by saying that, after careful study of the subject, he was satisfied that a paying road could be built to run in a straight line between New York and Philadelphia, reducing the distance about 10 miles and enabling trains to be run through in 60 minutes. One of the means of effecting this purpose would be a reduction of

#### LABOR AND WAGES.

It is reported that the miners in the Hocking and Sunday Creek valleys struck, on December 23, for two pay days a month instead of one. The miners of Nelsonville, Haydenville, Straitsville, Gore, Shawnee and Rendville have all quit work. The strike will probably last but a few days.

The Penn and Westmoreland Coal Company miners refused to yield to the seduction of the Western Pennsylvania visiting committees and inaugurate a strike. They

committees and inaugurate a strike. They also refused to attend a meeting called. A delegate to the meeting was arrested, but released soon after.

The coal miners at Wheeling have taken

action as follows: I. That we, the representatives from the mill miners of the Ohio Valley mines, in convention assembled, having failed to effect an agreement with the mill operators, deem it wise to submit the mill operators, deem it wise to submit the following proposition to the miners at large: That after the 3d of January, 1881, the price for mining in all the mill mines within the Ohio Valley district be advanced to 2½ cents per bushel, and this price to prevail until the 1st of January, 1882, when it may be reaffirmed, lowered or raised. 2. That to further a cool and thorough discussion and consideration of the question, we respectfully suggest to our constituents that the final vote be not taken on it before Monday, the 27th of December, 1880. 3. That the general secretaries be instructed to call a convention of the mill miners of the Ohio Valoperators, deem it vention of the mill miners of the Ohio Valley district to meet at the McLure House on Saturday, January 1, 1881, at 2 p. m., to de-clare the aggregate decision of the miners. The pedding miners also met, and reports were made to the effect that the price named be conceded to them on last Monday.

There was a small strike at the Swifts Iron and Steel Works, Newport, Ky., re-cently, about cinder for the puddling fur-nace, but it was settled in a few days.

nace, but it was settled in a few days.

A lodge of the Amalgamated Iron Association has been organized at Wellsville, Ohio.

Onlo.

The Chinese learn rapidly. Down in a New Jersey town a number of skilled Chinese laborers have "struck" for higher wages. Leave John to roam whither he will without a master, and soon we shall have heard the last of the phrase, "Chinese cheen lebe."

have heard the last of the phrase, "Chinese cheap labor."

The following gives the mining situation at the works along the B. & O. R. R., near Pittsburgh: The men at Alpsville are all in at 3½ cents. The men at Scott Haven went in on Tuesday at 3 cents, but came out again on Wednesday. Part of Armstrong's men are in at 3 cents.

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# The Iron Age

Metallurgical Review.

New York, Thursday, December 30, 1880.

DAVID WILLIAMS . . Publisher and Proprieto JAMES C. BAVILES . . . Editor. JOHN S. KING . . . . . Business Manager

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Matal Prices.

Philadelphia seems to have made one of the few successful experiments in distributive co-operation. The twenty-fifth quarterly report of the Philadelphia Industrial Co-operative Society shows that the balance on hand at the beginning of the quarter was \$6947.10, and the actual receipts, \$34,352.33. or, together, \$41,299.43. The expenditures. including purchases of goods, salaries, rents. horses and wagons and fixed stock amounted to \$38,254.35, leaving a handsome balance in the treasurer's hands to begin the new quarter, and seven well-stocked stores, with sufficient cash to meet current expenses. These comprise three dry-goods establishmerts-one at 2337 Frankford road, another at Front and Dauphin, and another on Kensington avenue, east of Front-at which sales were made the last quarter amounting to \$22,853.18; two meat and provision Dauphin, with sales to the amount of

prises have been established within the The Western Iron and Nail Outlook. ing the power and decreasing the distance quarter as an experiment, and are reported to have proved quite successful. The society have upward of 800 members, five shares at \$1 apiece and an entrance fee of 25 cents constituting a stockholder and entitling him or her to share in the profits, which this quarter is 6 per cent. on the amount of the bill of goods purchased. All goods are sold for cash at the usual market rates, and persons not members or stockholders, at the end of the quarter, are entitled to a rebate of 4 per cent. on their bills. When a member desires to withdraw, he receives the full price paid for his stock, less a certain sum withheld for expenses. The society own the property, valued at \$12,000, in which their perations are chiefly conducted.

#### The Idea of the National Bank System

A few weeks ago, in a brief note on the statement in the annual report of Comptroller Knox, crediting Secretary Chase with having originated the idea of our present national bank system, we alluded to the work of The Iron Age in the interest of national banking, and claimed that in our columns the plan of this system was first suggested and fully discussed before Secretary Chase had given the subject any thought. Some interest having been expressed by our readers in this matter, we have taken the trouble to search our files omewhat carefully, and now claim for the founder and editor of The Iron Age the credit of the first suggestion of a national paper currency, to be issued by banks under government authority, and secured by pledge of good colla erals to be held by the United States Treasury. As this is of interest as a matter of financial history, we republish from the issue of the monthly Hardwareman's Newspaper for December, 1857, the following extract from an article by the late John Williams, discussing problems of national finance:

"SECOND .- We hold that we should have a national currency, or, at least, a circulating medium, issued under such sanctions and securities as would in-sure the currency at par in all parts of the United

sure the currency at par in all parts of the United States.

"The outcry that has been raised during the recent panic against banks and the banking system is perfectly unreasonable, exhibiting an entire misapprehension of the nature and necessities of commerce. But while we appreciate and shall defead the vast benefits resulting from a sound banking policy, we must admit that the system at present in operation in the United States is very defective and subject to grave objections. We see great difficulties (which we cannot now pause to specify) in the way of the establishment of a national bank; but we believe that the substantial benefits to be gained from such an institution in the equalization of exchange and the security of the be gained from such an institution in the equilization of exchange and the security of the circulation, could be as well attained without incurring the evils likely to result from the establishment of an overshadowing monetary monopely in the hands of the ruling powers. There are various means by which, we think, this end may be accomplished; but the following appears to us, at this moment, as the most practicable:

practicable:

"We propose the establishment of a new
federal department for the control and supervision of banks throughout the United States,
with which all securities for the issue of bills
should be ledged and from which should with which all securities for the issue of bills should be lodged, and from which should issue, duly certified by the proper officer, the entire circulation of the country. The nature of the securities to be accepted by this department should, of course, be wisely considered and accurately defined, but should be of such a nature as to render the bills issued upon them entirely secure. The bills thus certified should be accepted in payment of duties and postage. be accepted in payment of duties and postage, and, being all of equal validity, would at all times possess a value within a fraction of par anywhere within the jurisdiction of the United

States. ... This system, which is but the exten "This system, which is but the extension to the whole Union of the principle on which the banks of New York and other States are now based, would be productive of many advantages. It would afford perfect safety to the public in the bank-note circulation of the country. It would ever prevent the depreciation by one State of the currency of another State, and effectually hinder the unreasonable and extravagant fluctuations in exchange, to which the present system is incident. It would restrict the business of banking to the solid capital employed in it, and would immediately annihilate the wretched trade of the money broker.

banking to the solid capital employed in it, and would immediately annihilate the wretched trade of the money broker.

"We are disposed further to advocate the suppression of bank bills of a less denomination than five dollars, as a measure calculated to call an increased amount of gold and silver into active use, and to prevent much inconvenience and frequent temptations to fraud; and we shall advocate the advantage of a certain amount of specie, proportioned to the circulation, remaining, permanently, in the values of every bank. Such a system, combined with a heavy personal responsibility on the part of stockholders for the liability of banks, would, we think, render the bank note circulation of the country entirely safe, which would so command universal confidence, while it would secure all the benefits of a uniform currency, without any of the evils of a national bank.

"Other wiser and more practicable modes may be proposed. When we hear of such, we shall very cheerfully adopt them. We presume it would not be disputed, that

this great monetary question is within the scope of federal legislation." These suggestions were made immediately after the panic of 1857, and were designed to meet the conditions then existing. Shortly afterward the Hardwareman's Newspaper became The Iron Age, continuing under the tions, without material alteration. Not only ceive the idea of the national banking system, but his efforts to secure the adoption stores-one 2337 Frankford road, which of this system by Congress in 1863 would sold \$581.89, and the other at Front and probably have been unsuccessful but for the His lights are rated at about 1000 candleprevious work of The Iron Age in shaping \$3741.85—and a shoe store in the hall on the opinions of members of Congress and

Two meetings of considerable importance vere held last week in Pittsburgh—one of the Western Nail Association, and the other of the bar iron manufacturers of Pittsburgh. The action of the first was given in our Pittsburgh market report. In brief, it was to reduce the card and advance the selling price to the card rate made. The card on nails was put at \$3 in July, but it is a notorious fact that nails have been selling far below this. The reports made at the meeting of last week showed that not only were stocks of nails much lighter than usual at this time of the year, but that the pressure to place orders was very great, and orders on the books for future delivery have not probably been so light for years as at the present time. This condition of the market seems to have led to the belief that the time had come to put the card and the selling price at the same figure, and the eard was put at \$2.85 rates. This action those who do not understand the nail market, but we question if there was a buyer or seller of nails in the whole country who had any trouble in understanding that a reduction in the card rate might be an advance in the selling rate, if the card rate made was adhered to-and this is just what the action

means. The result of the meeting of the Pitts burgh bar iron manufacturers-not the Western Iron Association, as the Associated Press has incorrectly reported-has been to materially stiffen up the price of bars, 214 cents being the asking price now. The demand for iron in the West is something wonderful just at the present time, the pressure being mainly for future delivery, say for March to July, and is largely in connection with railway supplies. It is reported that many of the loco motive works have sold locomotives enough to keep them busy to the end of 1881, and some to July, 1882. The car works are not sold ahead so far, but on an average it is fair to say that their product is taken for six months of 1881. The attempt to contract for iron to cover their own contracts has resulted in large offers to the mills, and as each works will write to a number of mills, it makes a large aggregate when notes are compared. It seems, however, that the car and locomotive builders have not been uniformly successful in placing their orders for future delivery. A somewhat similar state of affairs exists in the agricultural implement trade, and the same pressure to place orders is manifest

On the whole, the outlook for the Western iron trade for 1881 is most flattering, and as the manufacturers manifest a desire not to allow the buyers to advance prices with the rapidity of last year, it promises to be one of great prosperity.

## The Brush Electric Light Experiment

on Broadway. After a somewhat extended experiment with the application of its system of electric lighting for public places, thoroughfares and large buildings, the Brush Electric Light Company have begun an elaborate experi-ment in this city. While all those who have taken an interest in the subject of street illumination by means of the electric light have long been familiar with its successes in large European cities, this first attempt at a systematic trial in New York has forced the question into greater prominence here, and will do much toward shaping public opinion in regard to its merits or its defects. Much therefore depends upon the manner in which the trial now begun is conducted, and its conductors owe it to them selves and to the public to do all within their power to settle the questions of cost, &c., definitely and place them beyond all controversy. Careful and itemized accounts of the power developed and consumed, accurate and reliable photometric tests, repeated at short intervals, &c., should freely be placed before the public. As yet it is only possible to speak of the general effect, and the results thus far obtained are de cidedly encouraging. The lights, while they are not entirely free from the disturbing variations thus far characteristic of all voltaic are lamps without exception, show a remarkable improvement in this direction. Variations in the illuminating power of the lights on Broadway were repeatedly noticed during a walk along the circuit from Fourteenth to Twenty-third streets, but they did of exchanges indicate an increase over Nonot occur in so sudden a manner, nor did they follow one another so rapidly, as in the other lamps exhibited in many other localities in the city. The 15 lights on Broadway are all in one circuit, nearly 4000 feet York. The increase of business, therefore, long. They are mounted on posts 20 feet high, so that the eyes of persons approachsame management, without other change ing them are not exposed to the direct glare not as to the United States at large. The than that of name. When the exigencies of of the light. Mr. Brush has dispensed with great grain and provision marts and the the war again forced on the attention of the the frosted globes, only a small portion of small New England manufacturing towns country the need of a uniform currency, the the under side being ground, while the show the largest advance over the same idea conceived in 1857 was again brought rest is clear glass. In this way he avoids month last year, which is about what the forward and adapted to the changed condition to the very high losses incident upon the use general signs of trade indicate. So it is of the ordinary globes, while, on the other is it true that Secretary Chace did not con- hand, the light is not so diffused. He has provision centers alone, out in the manufactaken one important step in considerably reducing the power of each single lamp and felt. It is more than probable that we are approaching them closer to one another. on the eve of ore of the largest expansions power and are placed at distances of one whose special interests we represent. Last block. While the wisdom of this course is year's building was stopped in many in-

between the lights, as a greater uniformity in the illumination would be secured. As at present conducted, the trial has many features which seem to point to its ultimate success. The quantity and the quality of the light is the most satisfactory yet shown, and therefore the announcement of the results of careful practical tests will be looked forward to with the greatest interest.

#### The Proposed Patent Union.

During the Paris Exhibition a number of gentlemen prominently connected with the government and the industrial interests of France, succeeded in agitating the necessity for the adoption of some measures to insure a better protection to foreign inven tors in the different civilized countries. A convention was called to meet at Paris during the months of October and November of the present year. Twenty-one states has been the occasion of a good deal of cheap among them Austria, Belgium, France wit and absurd explanations on the part of Great Britain, Holland, Italy, Switzerland Russia, the United States and Brazil sent dele gates, who, after prolonged discussion and after communication with their respective governments, have united in offering for adoption a project for the mutual protection of "industrial property," including patents. designs, models, trade-marks and "commercial names." The members of this union engage themselves to accord to the citizens of any of the contracting parties the same advantages which are given to their own subjects, so that they have the same protection and the same legal rights against those infringing or imitating. Persons having applied for a patent, &c., in the manner prescribed by the laws of the country, shall be secured a priority right for a certain period, in order to take out their patents in other countries. Therefore, the first patentee in one country belonging to the union will not lose his rights in any one of the others by reason of a later patent, or by the publication or use of his method in that country. The time during which he is given this preliminary protection is fixed at six months for patents and three months for trade-marks, designs, &c., an additional delay of one month being added for transatlantic countries. This is an important improvement which all those who have had occasion to make demands for patents in foreign countries will readily appreciate. Another matter which is of interest, especially to those exporting machinery, &c., to France, is that a patentee may import his patented articles into any of the countries of the union without danger of losing his patent rights in that country. It should be understood, however, that this does not exclude the necessity of manufacturing in those countries where the working of the patent is obligatory. The parties to the union have furthermore agreed to urge the necessity of permitting the seizure of any articles bearing a fraudulent trade-mark in any country where it is legally protected, so that after duly registering, any manufacturer can promptly put a stop to trading on his reputation on the part of foreign makers. If vigorously and promptly carried out, a measure like that proposed would do much toward fostering trade and securing those ngaged in it in the enjoyment of the fruits of their superior skill and ingenuity. These wise and fair propositions on the part of the convention will receive the hearty indorse ment of all honest inventors, manufacturers and merchants, and the public in general will be benefited by the protection afforded against the growing nuisance of swindlers who palm off inferior wares under wellknown names or trade-marks. The final formation of a union, to be effected in 1883 in Vienna, and the establishment of an international bureau at Berne, Switzerland, similar to that of the Postal Union, will therefore mark an important step forward in the recognition of the rights of inventors and manufacturers to protection in foreign countries. The liberality of our country will then be extended over the greater part of the civilized world, and will, no doubt, prove highly advantageous to Americans.

As shown by the clearing house exchanges, November was a month of an unparalleled volume of business, both at home and abroad. In New York and Lon don the month included the largest clearance in any one day on record, and the general returns show that the increase was not confined to these centers alone. The returns vember last year-another great business month-of about one-sixth for the country at large, a trifle more for New York and a trifle less for the United States without New as between New York and the rest of the country, was pretty evenly distributed, but evident that it is not in the great grain and turing centers as well, that this influence is of trade we have ever seen for the products Frankford road, which sold goods to the apparent, there is reason to believe that it stances and curtailed in others by the high amount of \$781.50. The two last enter-

but little "boom" this year in prices, though we expect some, but not enough to curtail any enterprises.

#### Lights and Lighting.

The importance of good light, to enable work to be done after dark, is very great, and during the long evenings whon and the hours of night encroach upon those of the working day, shops where orders are pressing feel the importance of some method of practical illumination. The first result of poor light is that the work is imperfectly done. The workman is not able to judge of the quality of what he is doing, and so the character of the product falls off, even though he may do his best. The quantity of work produced is also diminished. owing in part to the difficulty of seeing, and in part to the discomforts which are always entailed by an attempt to do anything by an imperfect light. There is always wear of eyesight, too, which, though it may not be noticed at the moment, contributes to the weariness of the labor. A good light is a necessity in almost every manufacturing operation that can be named. whether carried on upon a large or a small scale. In many lines, indeed, so important is this that the length of the working day in winter is always determined by the hours of daylight, and always ends before artificial light is needed.

In the great cities and most of our manufacturing towns there are at least three methods of artificial illumination which are available for work on a large scale. First in order of intensity is the electric light; second, gas; and last, oil, the latter, with the burners now available, having least power. The electric light, when it can be employed under even ordinary conditions, is very cheap, its cost being practically nominal. When an establishment has power available at night, the amount needed to drive the electric machine is so small that no ordinary establishment would ever miss the quantity needed for the largest light. With the present price for coal, a horse-power can hardly be estimated to cost in a large engine more than a cent per hour, and all the other expenses will not more than double that figure. The consumption of carbons is not large, and with an outside estimate for power the total cost of a light of 1000 candle power for six hours would not be more than 48 to 50 cents. To this, if we calculate interest on the plant, we should perhaps add 15 or 16 cents, making a total of about 65 cents for six hours.

The electric light appears to be applicable in all places where power is used and where an abundant and intense light is needed. There are drawbacks, however, to its use, and these are somewhat serious. The light given is not a pure white; it has a strong inge of red and blue, and is notably wanting in the yellow. This makes the blues and reds, as well as all shades of green, unnaturally brilliant, while the yellows are exceedingly dull. This causes the peculiarly ghastly appearance which is so characteristic of the electric light. Another fault is that the source of light is practically a single point; hence the shadows are as sharp as though their boundaries were marked with a knife. This prevents the possibility of soft shades, and makes every shadow of the deepest black. The tendency of this is to cause all objects to appear flat, even when they are round. Until these objections are removed the utility of the electric light will have well-defined limitations.

Wherever there are gas works an illumination, in some respects greater than that possible from the electric light, may be obtained by the use of large burners, and at a much less cost than is usually deemed possible. For example, by the use of a cluster of the largest burners manufactured by Bray, of London, 700 candle power can be obtained at a cost of about 25 cents per hour, or \$1.50 for six hours. This, it is true, is somewhat greater than that of the electric light, but no power is needed and no supervision reuired. At the office of the American agents of these burners we have seen much better results than these, but we have taken figures which are entirely within the results obtainable in practice. Gas has the advantage of throwing a diffused light, which is very valuable. The light, although not as white as that produced by the electric lamp, inclines to the yellow instead of toward the blue, and hence is not only more agreeable to the eye, but of nore value to the workman.

In many of our country towns the only neans for lighting is oil. Unfortunately, no large burners are in the market which are applicable to ordinary lamps. We believe that there are tubular lanterns which will give perhaps 48 candle power. The cost of running those burners for, say, six hours would amount to the expenditure of perhaps a pint of oil. These are much better than a number of small burners consuming the same quantity, and, so far as we know, are the best that can be had in the country. By them any shop may be well lighted, and work carried on with almost the same ease as with gas. The main object is to get light enough.

In all cases a concentration of the sources of light, rather than a dispersion of them, is needed, except in the case of the electric light, when, for the sake of dispersing the dark shadows, it is sometimes need divide the light and use two instead of one. A great loss of light, however, always takes place whenever this is done, either with would be better to go further still in reduc- prices of iron and hardware. There will be the electric, gas or oil lights. With oil and

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gas the burners should be kept as few in drawn, this bill provides that a bounty of number and as close together as possible. One large burner is always better than two small ones, both on account of getting more from the same amount of oil or gas, and because one flame of double power or two flames close together are more effective than two similar flames separated by a considerable distance. The reason for this we can-

not here discuss, but it is easily demonstated. Whatever light is used, let it be remembered that an abundance pays, not only in the amount of work and its quality, but in a thousand other ways. In the large cities, for example, an abundant light is made to pay for itself in ordinary shops, simply as an advertisement, and for this purpose alone it is also quite valuable in the country. How much more attractive is the store or shop that is well lighted than the one that is dark and dingy. The subject is well worth the careful attention of our readers from a business point of view alone, independent of the care of the eyesight. Oils are everywhere so cheap at the present time, and gas, in most places, is so reasonable in cost, that liberality in the matter of lighting cannot be regarded as extravagance by any one. On the contrary, it is

#### Commercial Reciprocity with France.

The question of commercial reciprocity with the United States promises to be discussed very seriously during this session of the French Chamber of Deputies. The trade of France with the United States in 1875, 1877 and 1879 was as follows, in millions of

we had in 1879 a favorable balance of 439,-000,000 francs, causes great consternation in that country. We are accused of manifesting a most unneighborly willingness to take advantage of favorable conditions in foreign tariffs, but to so adjust our own customs laws as not to give foreigners any chance to compete with domestic manufactures in our own markets. This sounds to pleased thereat. It has happened that during the past few years there has been an increasing French demand for our surplus food product, and this has been largely instrumental in turning the scale in our favor. It is now proposed to put a tax on distinctively American produce which shall amount to a discrimination against us. If our produce is not needed it will not be imported in any event, so it will make comparatively little difference whether it is taxed much or little; if it is needed, it will be imported anyway, and the consumers who have to pay the tax, since it is not designed for protection, will be the ones affected. In any case we are likely to survive the calamity of French wrath, especially as what they offer us in the way of reciprocity for the concessions they demand is what a clever writer has called "a spoonful of pot-luck." This bulldozing policy in the matter of customs regulations will not work. Canada tried it, and the people of this country would never have known it if the newspapers had not told it. We should be sorry, on general principles, to see France place a heavy tax on her food imports from this country, and no doubt such a tax would be unfavorable to our trade interests; but it will be more

country wants on this subject is not abstract principles, but concrete, practical legisla-tion. It is also probably true that, in view of the part the tariff played in the last election, its opponents hardly know what action to take that will not injure them, and so propose to let the influence of the canvass away before taking any action at all. The best thing the protectionists can do is to carry the war into Africa by forcing the revenue reformers and free traders to accept or reject the Eaton bill. The revenue tariff party has everything to lose, and the party of protection everything to gain, by such an investigation of the relations of the tariff to our industrial system as would be

sixty francs (\$11.58) per ton of gross register be paid to the builders of iron or steel vessels, and that an additional bounty of twelve francs (\$2.33) per 100 kilograms (220 pounds) of engines be granted to those building the machinery for such vessels. It is furthermore proposed to pay a subsidy of one and one half francs (29 cents) per registered ton and per 1000 miles run on any direct marine line, to the owners of foreign-going French vessels. Ample protection is thus afforded to the shipbuilding and allied interests, and the general trade of the country is aided by the establishment of numerous lines of transatlantic steamers. It is understood that after the passage of the bill, companies already formed will run steamers to New York, Canada, Mexico, South America and Australia. The subsidy is such that it amounts to a guarantee of interest on the capital invested. Thus a steamer of 2600 tons register, plying between Havre and New York, and making eight voyages per annum, would receive a subsidy of \$45,000 per annum, or more than 10 per cent. on an original cost of \$400,000. With such an aid, the carrying trade would expand enormously in a short time, and during the ten years to which this subsidy system is limited, extended and profitable relations with other countries would be firmly established. That strong and powerful interests are wedded to this plan may be inferred from the fact that the new line, which is soon to commence business between Bordeaux and this city, has received voluntary aid from the Bordeaux Chamber of Commerce, and from the Orleans and Southern Railroads of per annum, or more than 10 per cent. on an from the Orleans and Southern Railroads of

It seems extremely difficult to get at the real condition of the subscriptions to the Panama Canal. One thing appears certain, that the subscriptions in this country have us like very childish talk. International trade is not a matter of international courtesy, nor one which calls for pleasant reciprocal favors. For many years France had the balance in her favor and was greatly pleasant the property of the presidency of the American branch, may mark the awakening from what we have regarded as De Lesseps' dream to the reciprocal favors. For many years France had the balance in her favor and was greatly pleasand thereat. It has happened that during

> The Chicago Historical Society has been placed in possession of the working drawings of the first vessel built to run wholly by steam power. This ship, named the Royal William, was completed at Quebec in 1831. Two years later she sailed for London, making the trip in 25 days. Shortly after she was sold to the Spanish government, and being converted into a man-of-war, was the being converted into a man-or-war, was the first steamship ever used in that capacity. The price paid for her was £10,000. It is difficult for the younger generation to realize that steam transportation on land and sea is so new a thing, comparatively, and that so much has been accomplished within helf a century. half a century.

> The last issue of bonds to pay for the losses incurred by Allegheny County at the time of the Pittsburgh riot has just been placed. The 4 per cent. one-year bonds commanded & per cent. and & per cent. premium, and the twenty-year 4 per cent. bonds 4 per cent. premium. The County Commissioners have given notice that they will apply to the Legislature at its coming session for reimbursement for these payments.

4,000,000 gross tons.

We estimate the production of rails of all kinds in the United States in 1880 at 1,200,ooo gross tons; in 1879 it was 993,993 tons. Of the production of 1880 there were 745,-Of the production of 1880 there were 745,ooo tons of steel rails and 425,000 tons of
iron rails; in 1879 we produced 610,682
gross tons of steel rails and 383,311 tons of
iron rails. During 1880 we imported about
275,000 tons of rails of all kinds, which,
added to the probable production of 1,200,oco tons, gives 1,475,000 tons as the approximate consumption of the year.

In 1880 we mined in the Lake Superior

district about 1,950,000 tons of iron ore; in 1870 the production was 1,414,182 tons. In 1880 we imported about 400,000 tons of iron ore; in 1879 we imported 284,141

tons.
In 1880 track was laid on about 6500 miles of new railroads in the United States;

#### WASHINGTON NOTES.

Mr. Kasson and the Speakership

(From Our Own Correspondent.)

Washington, D. C., December 29, 1880.
The question which now most perplexes the tariff men in the House of Representatives is the position of Mr. Kasson on industrial questions. As he has given notice by cable that he will be in Washington in February to superintend his own contest for the Speakership should there be an extra session, it is generally understood that he means business, and will get that high office if he can. There is no question about Mr. Kasson's ability and experience as a parlia mentarian and legislator, but it is regarded

officer are concerned, will have scored a good point.

point.

Mr. Kasson, though a member of the
Thirty-eighth, Thirty-ninth, Forty-third and
Forty-fourth Congresses, and during most
of that time a member of the Committee of
Ways and Means, has never taken a special-Panama Canal. One thing appears certain, that the subscriptions in this country have not been very heavy, but in France and Spain they are reported quite heavy, and it is stated that the subscriptions are greatly in excess of the stock to be allotted. It is more than possible that the reported subscriptions of \$125,000,000, and the acceptance by so shrewd a man as Secretary Thompson of the presidency of the American branch, may mark the awakening from what we have regarded as De Lesseps' dream to the real fact of a great enterprise. We have been inclined to 'distrust the mercurial Frenchman, but we know success when it comes, and it is only fair to concede that he has so far accomplished what he has undertaken. His success has at least aroused the activity of the dormant Nicaragua route and sent Eagls to Mexico.

The time a member of the Committee of Ways and Means, has never taken a specially conspicuous part on tariff questions in with the free traders and reformers. On February 28, 1867, on the resolution "that from and after 10 days from the passage of this joint resolution there shall be levied collected and paid on all goods, wares and merchandise imported into the United States, and now subject to duty under existing laws, an additional duty equal to one-fifth, or 20 per cent., of the duties and rates of duties, including specific and advalorem rates, now imposed by law upon all goods, wares and merchandise, provided that no additional duty shall be levied, collected or paid on sugar, tea, coffee, salt or coal," Mr. Morrill, then a member of the Yeast on tariff questions in the ways and Means, has never taken a special vocation and the fer traders and reformers. On February 28, 1867, on the resolution in that from and after 10 days from the passage of this joint resolution there shall be levied, collected and paid on all goods, wares and merchandise imported into the United States, and now subject to duty under existing laws, an additional duty equal to one-fifth, or 20 per cent., of the duties and rates road iron was included in the resolution, so that upon foreign iron the same additional duty of 20 per cent. would be imposed. Mr. Morrill modified the resolution so as to place railroad iron among the exceptions. On the vote the tariff men, including all the repre-sentatives of manufacturing districts, voted for the resolution to suspend, while Mr. Kasson voted with the free-trade Democrats Kasson voted with the free-trade Democrats and Western Republicans who were antagonistic to a protective tariff, and only supported a revenue tariff as a means of furnishing the funds necessary to the carrying on of the government. On the Morrison free trade bill, which was reported during the last Cobgress of Mr. Kasson's career in that body, there was no speaking, and, accordingly, he did not give his views. It is understood, however, that then as now he understood, however, that then as now he entertained the Western notions on the subject, which are very much toward free trade. We think, however, in the past six months there has been a better appreciation of the question and a disposition to modify views upon it.

The funding scheme pending in the House of Representatives at the time of adjournment for the holiday recess, and which will be resumed for final disposition when Conlikely to produce a political revolution in France than a panichere. We are not asking any favors of France just now, and we cannot see why she should expect any from us, or bite her own nose off, so to speak, in disappointment at not getting them.

An Active Year in the American Iron and Steel Association, there will probably be no attempt at tariff tinkering during this session of Congress. Even Mr. Hurd's affort to enact into law a statement of the doctrines of the Manchester school of free traders, will not be approved by any considerable number of the free traders of the House, as what the country wants on this subject is not the subject in the Legislature at its coming gress reassembles next week, is watched with considerable vigilance by the Republicans. There is a proposition which attracts considerable support, to prohibit the purchase of bonds, and the consequent reduction of the public debt, except by purchase at the market rates. As this would be a rather unprofitable operation for the gress reassembles next week, is watched with considerable vigilance by the Republicans. There is a proposition which attracts considerable vigilance by the Republicans. There is a proposition when Congress and which will be resumed for final disposition when Congress reassembles next week, is watched with considerable vigilance by the Republicans. There is a proposition when the considerable vigilance by the Republicans. There is a proposition when considerable vigilance by the Republicans. There is a proposition when Congress reassembles next week, is watched with considerable vigilance by the Republicans. There is a proposition when Congress r imports. The tariff men understand the force of such a proposition, and do not intend to permit a measure to pass that includes any such dangerous vantage ground for the free traders. Of course a 3 per cent. bond of 20 to 40 years, to be sold at not less than par, and authorizing the secretary to redeem the outstanding loans when due at par, will not meet with very serious opposition.

sides, and the question is so well understood that there would be no difficulty in reaching concurrent legislation; but there are many members in both Houses who still cling to

and all other ports in the United States dur-Ir. Kasson and the Speakership—
The Funding Scheme—The InterState Commerce Bill—Exports of
Petroleum.

The Speakership—State Commerce Bill—Exports of Petroleum.

meaning of the same	Total.			
Customs districts.	Gallons.	Value.		
Boston New York Philadelphia. Baltimore. San Francisco a. Richmond All other districts	739,722 26,264,322 4,563,822 2,108,084 27,650 242,035 118,719	111,704 2,925,622 514,481 246,918 5,709 21,012 15,556		
Total October, 1680	34,065,954	\$3,840,602		
Total October, 1879	50,055,859	\$4,007,177		
Total zo months, 1880	295,430,798	\$28,829,945		
Total 10 months, .379	341,727,052	\$30,087,807		

	Gallons.
Crude oil-New York	3,113,908
Philadelphia	481,932
Naphthas—New York Philadelphia	2,576,070
Illuminating oils—New York	19,988,995
Philadelphia	4,066,094
Lubricating oil—New York	399, 163
Philadelphia	263,886
Philadelphia	203,000

This covers almost the entire product, all the other ports shipping not over one-tenth.

#### The Railroads of the World.

From a volume published by the French Minister of Public Works, entitled the "Album of Graphic Statistics," the Saturday Review has compiled an interesting article in regard to the railroads of the world. Taking the kilometer for the standard, it may be roughly estimated at three-fifths of a mile, or exactly .621 of a mile. In 1830 the total lengths of railroads in Europe were 316 kilometers, of which 270 were in England and 37 in France. In the United States there were 65 kilometers. were in England and 37 in France. In the United States there were 65 kilometers. In 1850 Europe had 23,083 kilometers, of which 10,656 were in the United Kingdom. Germany had 5823, and France only 3080. In the same year the United States had 14,443 kilometers. In 1870 there were 104,120 kilometers, of which the United Kingdom had the converse of which the United Kingdom kilometers, of which the United Kingdom had 24,999, very nearly one-fourth of the whole. But Germany during the 20 years had more than trebled her railroads, and possessed 18,560 kilometers. France had not been asleep, however, and had 17,924 kilometers. In 1876 the United States had 84,637 kilometers, or about four-fifths of the mileage of Europe. In 1878 the increase in Europe was 50 per cent. over the railway system of 1870. Germany had then, it seems, the greatest lengths of lines in Europe, some 31,556 kilometers, while Europe, some 31,556 kilometers, while France had only 24,424 kilometers. The Germans, then, had much greater facili-ties in sending toops forward than had the French. This want of railroads in France may French. This want of railroads in France may account for Mr. de Freycinet's railroad policy. Two years ago, according to the French authority, we had 131,632 kilometers of road. In comparing length of railroads with population, Sweden is the best provided of any of the European States, having 10.3 kilometers of road for every 10,000 inhabitants. Taking the neen in Europe, it is 5.3 kilometers for every 10,000 inhabitants. The United States is prodigal with her railroads, having 39.9 kilometers to every 10,000 people, six times more than the European mean, for the reason that we build roads to attract population, thus "reversing ordinary attract population, thus "reversing ordinary European ideas that railways should attend traffic, not go before it." For comparison of kilometers to area of kilometers of surface, Belgium has 13.5 kilometers of road, Germany 5.8, France 4.6, the mean of Europe being 1.7, and, strange to say, the United States mean is about the same as the Eu-ropean one. From the statistics the English reviewer seems to think that, outside of England, Holland, and some few minor European countries, railroad construction has hardly commenced, and that if the world is only at peace for a short period, railroad building will shortly take a fresh start of activity, and once more give rise to a brisk demand for iron and steel.

The Breadway Underground Road.—
The general term of the Supreme Court has denied the application made by Mr. George Ticknor Curtis a few weeks ago, on behalf of the Broadway Underground Railroad Company, for the appointment of Commissioners under the statute. The Court says:
The petition states that an application has been made for the consent of the owners of concluding and the figure of the property bounded on one half in value of the property bounded on Broadway along the line of the proposed tunnel and railroad, and that for the reason set forth in the affidavit of Walter J. Morris par, will not meet any continuous continuous denoral Reagan, Chairman of the House Committee on Commerce, to whom the Interstate Commerce bill was referred, says that he will make an effort to secure its passage at the present tession. The argustates that he has endeavored to obtain the consent of one-half in value of the property and has not obtained such consent. owners and has not obtained such consent and that he believes such consent cannot be obtained, because the property owners pre-fer that the railroad should be built under tariff to our industrial system as would be made by the commission contemplated by that measure.

In 1830 track was laid on about 6500 miles of new railroads in the United States; in 1879 the mileage was 4725 miles.

The French appear determined to make a strong effort to assume a more important rank among maritime nations and extend their trade with foreign countries. The latest proposals intended to aid in bringing about this result are embedied in a bill, favorably entertained by the government and sustained by public opinion, known under this first tile of the Morchant Marine bill, and is provisions announce a firm determination to adhere to the principal of extending government aid to the shipping interests for at least a decade to come. As at present

must be denied, but without prejudice to further proceedings after the requirements of the statute shall have been complied with.

The Cincinnati Stove Trade in 1880.

—Mr. Sidney D. Maxwell, Superintendent of the Cincinnati Chamber of Commerce, in his thirty-second annual report, just issued, says: "The business in stoves has exhibited great activity throughout much the larger part of the year. During the latter part of the summer strikes existed among the workmen, which, in some instances, completely suspended the work, and, in general, greatly curtailed production during the trouble, which lasted about eleven weeks. With this exception, manufacturing went forward with unusual activity, and there can be no doubt that the business of the year, in aggregate production, will greatly exceed that of the preceding year. Our business with the South in this line has been much enlarged, Prices in the fall and winter followed the Kasson's ability and experience as a parlia mentarian and legislator, but it is regarded as highly important, by the representatives of districts largely engaged in manufacturing industries, at this time to permit no one to be elected Speaker, if they can prevent it, except one who can be relied upon under all contingencies as the advocate and friend of protection.

The prominence of the industrial issue in the late campaign and the powerful weapon it proved to be in bringing about the success of the Republican party, as against the Democratic party on the doctrine of tariff for revenue only, is not only appreciated by the tariff men in the House, but the free-trade element is compelled to concede that this inseries as a parlia and winter followed the advance in raw materials with much reluctance. Notwithstanding the extraordinary advance of the materials during the extraordinary advance in raw materials with much reluctance. Notwithstanding the extraordinary advance of the materials with much reluctance. Notwithstanding the extraordinary advance of the materials during the extra Prices in the fall and winter followed the

out cessation, into the coming year, as it did last season, "only more so." The difficulty they experience is in keeping up with their orders and getting anything ahead for the spring trade

A Standard Pressure for Bollers.—
Mayor Stokley, of Philadelphia, received some days ago a petition asking for the appointment of a commission to establish a standard pressure of boilers upon which to base an inspection. The petition says: "We, the undersigned, manufacturers and stesm users in the city of Philadelphia, recognizing that in the city ordinance regulating the inspection of steam boilers there is no standard of pressure for boilers of different diameters and construction, petition your Honor to appoint a commission to consider the propriety of so amending the present ordinance that some standard shall be designated which shall become the law for such pressure. There are two tables of pressure. designated which shall become the law for such pressure. There are two tables of pres-sure used. That adopted by the United States government is based upon experi-ments made with American iron and meth-ods of construction. This table is used by the Board of Supervising Inspectors of Steam Vessels, Marine and Inland. The other table Vessels, Marine and Inland. The other table is that known as Fairbairn's, and is based upon experiments made by Sir William Fairbairn, of England. These experiments were made with English iron, and it gives lower pressures than are generally used in this country. It seems important to your petitioners that some standard which will not be so low as to interfere with our industries, nor so high as to be dangerous, should be esnor so high as to be dangerous, should be established. And we respectfully request that you act promptly, so that the early attention of Councils may be directed to this matter, so that inspectors and engineers may have some law to guide them in calculating the safe working pressures of boilers in our city." The Mayor appointed Charles T. Parry, Jacob Naylor, Coleman Sellers, Charles H. Cramp and James Hunter an advisory commission to frame an ordinance to cover the subject.

The Barbed Fence Wire Sults.—Judges Drummond and Blodgett, of the United States Circuit Court for the Northern District of Illinois, rendered jointly a few days ago one of the most important decisions ever given in this country. The litigation in regard to barbed fence wire has been in the courts for over four years, and fourteen suits were decided together, all in favor of the complainants, the Washburn & Moen Manufacturing Company, of Worcester, Mass., and Isaac L. Elwood, of De Kalb, Illinois, who are jointly interested in the patents involved, and are also largely engaged in the manufacture and sale of barbed fence wire. The decision is that all persons who have been manufacturing and selling the infringing barbed wire are liable for back damages. It is understood that Judge Lowell, of the United States Circuit Court of the Massachusetts District, had advised the complainants, who had several suits pending in his circuit, to await the decision of Judges Druwmond and Blodgett. suits pending in his circuit, to await the de-cision of Judges Drummond and Blodgett. We also understand that numerous suits We also understand that numerous suits pending in Iowa, Missouri, and other States have been suspended for the same reason, but will now be proceeded with. By this decision the complainants are shown to be the only parties who have the right to man-ufacture and sell barbed fence wire.

A thrilling accident occurred at the American Iron Works, in Pittsburgh, recently. While Robert Moore was at work at his rolls, his catcher failed to seize with his tongs a bar of white-hot iron which had been alleged between the rolls. placed between the rolls. The iron twisted itself thrice around the roll, forming a "col-lar." The catcher struck the iron, when lar." The catcher struck the iron, when there flew off a piece in the shape of a ring, with a stem 20 inches long running off at right angles to the circle. The band flew back and fell around Moore's head, resting on his shoulders. Quick as thought he grabbed the long stem with his tongs and the white-hot ring with his hand, and, with steady nerve and gentle movement, lifted the fiery thing from his shoulders. His face was badly burned and the flesh of his hand was cut to the bone. After the iron had could he put the ring over his head, it was

Ventilating Mines.—Mr. Plimsoll, of England, suggests that fire-damp should be withdrawn from mines by pipes, just as the water is pumped up from the sump. He would make a "sump" for gas in the highest part of the roof and then allow the gas to escape from the workings up a vertipart of the roof and then allow the gas to escape from the workings up a vertical tabe to the sump, whence it would be pumped to the surface and employed for lighting the village. Mr. Plimsoll thinks that such a plan would give absolute and immediate control to the managers of a pit over any gases which might be lurking in the recesses of the mine; and he suggests that, if his remedy is found useless, some scientific or philanthropic body should offer a premium of £20,000 for the discovery of a means of entirely preventing coalery of a means of entirely preventing coal-mine explosions.

In Great Britain there are 3680 miles of horse-car lines, with a plant of 1610 cars.

#### Special Notices.

## SECOND-HAND and NEW TOOLS FOR SALE LOW.

December List, No. 2.

Pi Lathe, 31% ft. swing, will turn a pulley a ride as oft. face.

Pit Lathe, 31½ ft. swing, will turn a pulley as wide as oft. face.

Pit Lathe, 16 ft. swing, will turn a pulley 30 inch face, with gear-cutting attachment.

Lathe, 100 in, swing, 18 ft. bed.

Lathe, 100 in, swing, 18 ft. bed.

Lathe, 100 in, swing, 15 ft. bed.

Lathe, 21 in, x 11½. New.

Lathe, 21 in, swing, 15 ft. bed.

Lathe, 17 in, swing, 6½ ft. bed.

Lathe, 17 in, swing, 6½ ft. bed.

Lathe, 18 inch swing, 6½ ft. bed.

Lathe, 19 inch swing, 6½ ft. bed.

Rogine Lathes, 4 ft. bed.

Horizontal Drilling Lathe, 24 in, swing, 19 ft. bed.

Planer, 21 in, wide, 6 ft. long.

Planer, 10 in, wide, 3 ft. long.

Planer, 24 in, x 4 ft. New.

Planer, 24 in, x 4 ft. New.

Planer, 25 in, wide, 5 ft. long.

Planer, 31 in, wide, 5 ft. long.

Planer, 25 in, wide, 18 ft. long.

Dimension Planer, 24 in, x 13 ft.

Upright Drill Press, 16 in, swing.

Suspension Drill.

Upright Boring Mill, 4 ft. between uprights.

Boring Bar, 12½ in, diam., 10 ft long, self-feeding.

Porcting Machine, for forcing shafts off pulleys.

Crank Planer.

Combined Punch and Shear. Forcing Machine, for forcing shafts off pi Crank Planer. Combined Punch and Shear. Sxrs Horizontal Engine. New. Two McKenzie Cupolas, 4 ft. x 4½ inside, Ladles, &c., &c. Seven Cranes.

Beven Cranes,
Jig Saw.
Pattern Makers' Lathe.
Post Drills.
Lathe, 16 x & Drills, a6 in.
Shaper, 15 in. New.
Shaper, 15 in. New.
Shaper, 20 in. New.
Shaper, 20 in. Stroke.
Gear Cutter.
600 lb. Steam Hammer.
1000 lb. Steam Hammer.
Suspension Drill.

The Wood & Light Machine Co.

## **PATTERNS**

For sale by

#### The Geo. Place Machinery Agency 121 Chambers and 103 Reade Sts.,

NEW YORK.

#### NOTICE.

We own the PATTERNS for the large variety of MACHINISTS' TOOLS Formerly made by the

# WOOD & LIGHT MACHINE CO.,

and would like to make an arrangement with some machine shop of good size to

**Manufacture Tools** for us from said patterns. Address

The Geo. Place Machinery Agency,

191 Chambers and 103 Reads Sts., N. Y.

#### For Rent.

The large brick FOUNDRY of the FRANKLIN Cleveland, Ohio, and adjoining the Valley Railway, will be rented for a term of years on very favorable terms—or will sell—possession given at exchange. Address once. The building is ready for occupancy as a foundry, or can be used for any manufacturing purpose with slight modifications. For particulars, address G. A. GARRETSON,

Cleveland, Ohio.

A SALESMAN of 12 years' experience in the Hardware business wishes to hear from some first-class firm desiring a salesman for Western trade References first-class in every respect.

Address O., Office of The Iron Age, 83 Reads St., New York

WANTED—By a man 4 years of age, with 25 years experience in the from business, a position as hookkeeper, salesman or traveler. A references will be furnished. Address PKANCIS, office of The Iron Age, 53 Reade ct. New York.

#### STEEL:

Its History, Manufacture, Properties, and Uses. By J. S. JEANS, Secretary of the Iron and Steel Institute.

Secretary of the Iron and Steel Institute.

Section I. History of Steel; Chap. I. History of Steel; 2. Early History in England; 3. Progress of Incention; 4. History of Bessemer Process; 5. Stemens-Sarrin Frocess; 6. Other Steel-making Processe; 7. Steel in America; 6. Germany; 9. Franca; 10. Austria; 1. Russia; 15. Sweden; 12. Other Countries.—Section I. Monaricoture of Seel Manual Steel Countries.—Section and Section of Seel Manual Steel; 10. Steel Section III. Chemical and Physical Properties of Intelligence of Seel Manual Steel; 10. The Use of Intelligence; 20. Spicoguelelen; 21. Sulphur in Steel; 2. Silicon in Steel; 23. Tensile Strength of Steel; (Mechanical Tests of Steel; 25. Analysis of Steel. Section IV. Uses of Steel; 25. Analysis of Steel. Section IV. Uses of Steel; 25. To Shipbuilding; 28. To General Purpose; 28. To Bridge Building; 28. To General Purpose; 28. To Bridge Building; 28. To General Purpose; 28. To Shipbuilding; 28. To Section IV. Mechanical Section IV. Seed of Steel; 25. To Shipbuilding; 28. To General Purpose; 28. To Bridge Building; 28. To General Purpose; 28. To Shipbuilding; 28. To Shipbuilding;

BAVID WILLIAMS, 83 Reads St., New York

#### Special Notices.

Large Stock of New and Second-Hand

# MACHINERY.

Three pair Scales, weigh to 3500 lbs. Fairbanks. One Horizontal Corliss Engine, 200 h. p. One Delamater Sugar-house Engine, 25 in. x48 in. One Horizontal Engine, 11 ln. x 18 in., Whitehall & Hampsen one Horizontal Engine, 15½ in. x30 in. Todd & Raf-One Horiz' Engine, 2 in. x 12 in. Erie Iron Works. Five Horizontal Engines, 8 in. x 12 in. J. & R. J. Four Horizontal Engines, 8 in. x 12 in. J. & R. J. Four Horizontal Engine, 3 in. x5 in. One Horizontal Engine, 3 in. x5 in. One Horizontal Engine, 5 horse power Two Horizontal Return Tub. Boilers, 100 h. p. each. Two Hor. Tub. Boilers, 5 ft. x12 ft., 20 3½-in. tubes. One Hor. Tubular Boiler, 5 ft. x12 ft., 67 4-in. tubes. Two Hor. Tub. Boilers, 5 ft. x14 ft., 50 4-in. tubes. Two Hor. Tub. Boilers, 5 ft. x15 ft., 43 4-in. tubes. Three Hor. Tub. Boilers, 4 ft. x13½ ft., 43 4-in. tubes. MACHINISTS' TOOLS.

One Hydraulic Press, 30-in. ram, in perfect order. One Lathe, 16 in. x7 ft. bed.
One Planer, 25 in. x5 ft. bed.
One Planer, 35 in. x6 ft. bed.
One Planer, 36 in. x6 ft. bed.
Two Crank Planers, 18 in. x5 ft.
One New Haven Drill. Will bore in center of 60 in.
One New Haven Drill. Will bore in center of 30 in.
Two Enaley Drills.
One Vertical Boring Mill, bore from 26 to 30 inches.
One Turn Table and Boring Mill, 12 feet between Columna.
One Travis Boring Mill.
One Merrill Compressed Air Hammer, Hotchkias
One Upright Drill, to the center of 64 in. [Patent. One if 42 in.

Five smaller. A full line of Woodward Steam and Fire Pumps. One hand-power Paper Cutter. I. GRAY'S MACHINERY DEPOT 37 Dev Street, New York, U. S. A.

# IRON-WORKING TOOLS

FOR SALE.

The following Tools of PORTLAND MACHINE

The following Tools of PORTLAND MACHINE WORKS, Portland, Me.:

One large ENGINE LATHE. 60-in. swing, 32 feet length of ways; triple geared compound rest, spindle in head-stock 8 in. next to bearing cone, 5 steps, 4 in. best rod feed, crop feed, spindle in tail stock 5 ia., crank pin borer. All in first-rate order. Price, \$200. Built by Eiden Gamman.

One COMPOUND PLANER or SHAPER, quick return. 16-in. stroke, with vise. front angle iron and vise will swivel in any direction, to any degree; circular bars, centers and table cone, 4 steps, 3½ in. belt is adjustable at all points of wear. In first-rate order; good as new. Weighs 6500 pounds. Built by Fortland Machine Works for their own use. Frice, \$300.

One SLOTTER, built by Gage, Warner & Whitney, 16-in. stroke, circular or top table 35 in. diam, x ½ in. thick, second table 36 in. 2quare x 3½ in. thick, third table 30 in. x 48 in. x 4 in. thick; power feed on two upper tables, hand feed on lower; slotting bar 6 in. thick, 6 in. on front, 11, on back, 7 ft. 6 in. long; drive pulley 21 ft. x 6 in., cone two steps, 6 in. belt, gear 46 in. x 4½ in.; 10 to 1 flywheel, 48 in. diam. Built 1865, Weight about 7 tons. In fair condition. Price \$60.

One MASSEY STEAM HAMMER, 300 pounds, double-acting cylinder 6 in. by 6 iz. Good as new. Price \$40.

One ROOT BLOWER, will melt 3% tons iron perhour at 300 revolutions per minute. Paint not solled on this machine; first-rate order. Price \$75.

One new UPRIGHT DRILL, built by Eiden Gam-

627. One new UPRIGHT DRILL, built by Elden Gam-man; power feed with drill to center of 46 inches; back geared, 4 steps cone. A very fine tool. Price

back geared, 4 steps comt. A very min work three \$600.

One large MORING BAR, 18 in. diam., 15 ft. long; self-feeding, with two gibed heads and flange for boring large cylinders. Price \$185.

One lot of IRON PULLEY PATTERNS, from 5 in. diam. to 4s in., comprising fifty patterns average diam. 16.88 in., average width 7.88 in.; nicely fitted crooked arms, fine style. Price for the lot,

Also, Engine Patterns, Gearing, Mill Patterns,
Also, Engine Patterns, Valves, &c. All will be sold for
less than half the cost of production. Inquire of
BICHARD PHENIX, Portland, Me.,
Managing Trustee,

#### TO EXCHANGE.

HARDWARE TO EXCHANGE, in lots to suit, for one-third cash, two-thirds good unincumbered real estate. All wholesale stock and in prime order. A full assortment of goods given in every HARDWARE.

P. O. Box 2578,

#### Cashier of Second National Bank, House to Exchange for Hardware.

The owner being permanently engaged in business at the West, will sell his dwelling in Elizabeth, N. J., cheap for cash or in exchange for Hardware. The house is near business centers, a pleasant walk of three minutes from Depot. The lot is 57 teet front, shaded by 'our haudsome trees; in the rear are choice fruit trees and grape vines. Has a good well and cistern, in addition to aqueduct water. Ten rooms in the house and all modern improvements and conveniences. A very desirable home for anyone doing business in New York. Letters addressed to "EXCHANGE."

Office of The Iron Age, 83 Reade St., New York, will receive the personal attention of the owner's agent, who will be in New York about Dec. 20th.

#### VALUABLE WATER FRONT ON EAST RIVER,

Between Eighth & Twenty-third Sts., FOR SALE.

Suitable for iron works or manufacturers, where large water facilities are required. About 50 lots, including land under water.

CHAS. S. BROWN, 77 Liberty St., N. Y.

P. NGINE BUILDERS, ENGINEERS, ENGINE

Owners, send postal for circular describing the most powerful, most sensitive and only perfect engine governor in the world. Address

THE ALLEN GOVERNOR OO,
Boston, Mass.

# Special Notices.

FOR SALE.

#### The Best Retail Hardware Stock and Stand in Kansas City

Is doing a good business. PRESENT STOCK ABOUT \$20,000

Such an opportunity as this, for a couple of active, hard-working young men, with \$20,000 or \$30,000 capital, is seldom offered. Upon such goods as have advanced extravagantly, we will make such discounts from the present market rates that no one need hesitate about buying the stock from fear of a decline in prices. Address

J. E. FORBES & CO.,
Kansas City, Mo.

#### For Sale.

FOUNDRY AND MACHINE SHOP. Estab lished 1842. Well stocked with Patterns and elling. Address A. L. VAIL.

#### For Sale.

LARGE SLOTTER, 6 ft. between Columns, 4-ft. Table, stroke 18 in., end, cross and circular movements. A heavy, well-built tool; in first-rate or der: will be sold low. Photo, on application.

Also, Tools of Machine Shop and complete Foun dry outfit: Tangent Screw Ladles, Cranes, Mao kenzie Cupolas, two Sturtevant Blowers. Circulars on application.

A. G. BROOKS & WINEBRENER, 262 N. Third street, Philadelphia

# For Sale.

One pair CHILL BOLLS, as inches diameter, so inches long; necks, 16 inches diameter, 13½ inches long; wabbler, 14 inches diameter, 7½ inches long.

Che pair PINIONS, 25 inches diameter, 30 inches to outside of shrouds; necks and wabblers same

as on chill rolls.

Six COUPLING BOXES, for above rolls and one POPPET VALVE ENGINE, so-inch bore, c-foot stroke, with cast-iron fly-wheel in eight sections, 16 feet diameter; rim of wheel, 11 K 12 m. Engine is now in position at our mill.

BRITTON IRON & STEEL CO., Cieveland, Ohio.

#### For Sale.

Hardware Business of 20 years' standing. Stock will invoice about \$10,000. Fresh and in good con dition. To a party with the money this is an opportunity that seldom offers. For particulars inquire of

JOHN BINDLEY, 186 Federal street, Allegheny City, Pa.

#### For Sale.

Stock of hardware, stoves and implements, an tore furniture, in one of the best towns in Kansas HARDWARE. Address

Box 366, Salina, Kansas

# For Sale.

HARDWARE .- The controlling interest or the whole of a Jobbing Hardware House, already es-ablished and doing a profitable business; located in one of the large Western cities. For further office of The Iron Age, 83 Reade St., New York.

#### For Sale.

An established Retail Hardware Business in good location in Denver, Colorado. Sales \$5000 to 6000 monthly. Capital required. \$15,000. P. O. BOX 2563, Denver, Col.

#### For Sale.

A complete stock of Shelf and Heavy Hardware, located in a live town in Central Ohio. Estab lished 1830. 'Good Payments." For particulars D. H., BOX 1077 address Lima, Ohio,

#### For Sale.

The undersigned offers for sale his Hardware Business, with or without Dwelling attached, in a highly prosperous town of 3500 inhabitants in Central Pennsylvania; soo new dwellings needed next summer. The business is for sale only on account of bad health. For further information, address OPPORTUNITY, Office of The Iron Age, 83 Reade St. N. Y.

#### For Sale.

To close an estate. The MACHINERY, FURNACES, TOOLS, &c., of a Plate and Sheet Mill Terms one-third cash, balance long time if wanted. Address
THOS. B. McKILLIP,

#### 72 Washington St., Chicago, Ill. FOR SALE.

Job Lots and Bankrupt Stocks Hardware Great bargains offered to the trade,

A. W. WHEELER.

#### 141 Lake St.. Chicago, 111. ENGINE AND BOILER FOR SALE.

Steam Ergine, 6 x 15, with 15-horse-power boiler, feed pump and heater, nearly new and in good order. One (17 se ond-hand "Peck" Lifter, not geated; will raise hammer of 90 lus. in weight, Ecck Box 18s, New Haven, Conn.

## Special Notices. **Nut and Bolt Machinery** FOR SALE.

We have on hand and in process of construction some thirty machines, comprising complete outfits of this class of machinery, with many valuable improvements perfected in 1886 by J. Noyes Smith, among which are NUT MACHINES, BOLT GUTTERS, NUT TAPPERS, WASHER MACHINES, &C. &c.

FOUR NO. 2 NUT MACHINES, for making all sizes Hexagon or Square Nuts under 2 in. diam., inch thick. Capacity, 13 to 18 kegs ¾ Nuts per day. One ready in one week; three in five weeks. Five No. 3 NUT MACHINES, for inch by half Hexagon or Square Nuts and under. Capacity, 600 to 900 pounds ¾ in. Nuts per day. Two ready in two weeks; three in five weeks.

One No. 1 NUT MACHINE, for all Nuts not over 3¼ in. diam., 1½ in. thick, Hexagon or Square. Heady in five weeks.

Three No. 2 BOLT HEADERS, for making inch Bolts or under, with Square, Hexagon or Oval-Head Bolts, Rivets, &c. One on hand; two ready in two weeks.

In two weeks.

OLE NO. 1A WASHER MACHINE, cuts Washer 6 in. diam. by 1/4 in. thick, and all sizes under. Be one No. 1 WASHER MACHINE, makes all the constructed.
Two No. 2 WASHER MACHINES, make Washers 2% in. diam., 10 gauge, and all under. Ready

Two No. s WASHER MACHINES, make Washers s 1/2 in. diam., 10 gauge, and all under. Ready in four weeks.

Two 1/4 in. DOUBLE HEAD BOLT CUTTERS, with complete sets of Dies and Taps, 1/2 in. to 1 in. Dies can be taken out and put back without altering the cutting size. On hand.

One 3/2 in. DOUBLE-HEAD BOLT CUTTER, same as used by Carriage Bols Makers, for Bolts not larger than 3/2 in. or 3/2 in. On hand

Two CIRGULAR SHEARS, for cutting sheet metal 1/2 in. thick and under. One on hand; one ready in five weeks.

Two SIX-SPINDLE and one FOUR-SPINDLE UPRIGHT NOT TAPPERS. Ready in four weeks.

One HORIZONTAL NUT TAPPER, second hand, six spindles for 3/2 Nuts and under. Will be sold very cheap if applied for soon. Address

YORK & SMITH, 57 South Water St , CLEVELAND, O.

#### Bissell & Welles, Wholesale Hardware Auctioneers. 83 Chambers and 65 Reade Sts., N. Y.

DUSINESS CHANCE.—WE OFFER FOR SALE
Da factory for the manufacture of Tin Stamped,
Japanned and Pieced Ware, containing all the necessary machinery and cles for same. The business is well established, and will be sold on easy
and favorable terms, or will sell the machinery
and dies without the buildings if desired. Address
TINWARE,
Office of The Iron Age, 83 Reade St., New York.

#### A Gentleman of Experience

as a commercial traveler in the interest of the Hardware and Stove Trade, desires a position with a first-class firm, where little or no traveling is required. Selary not so much an object as con enial, permanent employment. Best of refer-nces furnished. Address,

F. G. HOLTON,
3 Arcade Court, Chicago, Ill.

#### Manufacturers of Machinery

in need of a Practical Machinist and Engineer, having many years' experience as superintendent and draughtsman, may address COLD CHISEL

Office of The Iron Age, 83 Reade St., New York

#### WANTED.

By a Traveler of ten years' pleasant acquaintnce with the Wholesale Hardware Trade of the United States and Canada, a situation after Janu-Office of The Iron Age 83 Reade st., New York

#### Wanted.

A man competent to take charge of a Plate Mill.

He must understand the heating department thoroughly, as well as being familiar with Rolling, and all other departments of the manufacture of Plate Iron. Answer, stating qualifications in detail, and salary.

Address

Care of Knight & Smith,

N. E. cor. 2d & Vine Sts., Phila.

#### Wanted.

A SECOND-HAND RACK PLANER, to plane feet. CONNELL BROS..

December 18, 1880

#### Wanted.

An experienced Hardware Man desires to act as buyer for country, references furnished. buyer for country hardware merchants. Best

Office of The Iron Age, 83 Reade St., New York.

## Wanted.

TO PURCHASE 8 or 10 NAIL MACHINES. Please address, stating size, condition and price, Care of Jos. D. Weeks,

Office of The Iron Age, 77 4th Ave., Pittsburgh, Pa

#### Wanted.

A SUPERINTENDENT for a Charcoal Furnace healthily located in Missouri. None but a firstclass man need apply. Address MISSOURI

Office of The Iron Age, 83 Reade St., New York, SITUATION WANTED TO HARDWARE MEN An experienced traveler desires to become connected with a first-class House. Is well acquainted throughout the South and West. Has a large Raliroad experience. Was for four years Superintendent of a Mill for manufacture of Har Irou, Boller Rivets, R. R. Spikes, Bolts and Nuts. And for three years Superintendent of a Forge for Car Axles, Shapes. Car riage Axles, &c. Can furnish satisfactory references. Address.

Office of The Iron Age, 230 S. 4th St., Phila., Pa.

WANTED.—An Agency for the sale of Iron or Steel. Eleven years' experience as partner in Wholesale and Retail house.

Address BUSINESS.

Address
Se Keap St., Brooklyn, E. D., New York,

#### Special Notices.

ROOMS OF

## THE HARDWARE BOARD OF TRADE.

LIMITED.

Incorporated A. D. 1877.

Nos. 4 and 6 Warren St., New York. To the Trade and Public:

We are compiling, preparatory to issuing in Jan-uary, 1881, a limited number of strongly bound books, to contain the names and financial standing, as well as credit ratings, of some Fifty Thousand dealers in Hardware, Cutlery, Guns, Tinware and Stoves, Metals, Iron, Foundries, Machinery of all kinds (including Sewing Machines), Iron and Metal Pipe, Brass Fitting, Flumbers and Dealers in Flumbers' Supplies, and other trades kindred to these throughout the United States.

A large expenditure of money and the very best means have been used to obtain reliable information.

tion for the work, an I those desiring it can depend upon the information being fresh and largely drawn from those selling the firms, corporations and individuals rated, and the information is as and individuals rated, and the information is as reliable as it is possible to obtain for such a work. For Wholesale Dealers and Manufacturers it is the most desirable work of the kind, as it is prepared with great care, and should be consulted where extended credits are asked. All are not safe for credit because apparently prosperous, and detailed information given at the office will largely aid in forming correct judgments.

The Board of Directors of this company have placed a limit to the number of these books to be

placed a limit to the number of these books to be issued, and under no circumstances will orders placed beyond that number be filled.

The subscription price to the book is placed at THIRTY DOLLARS. All orders must be accompanied by draft on New York for the amount.
We respectfully ask all who desire a copy of this book to forward their orders at once, as they will be entered and filled in the order received.

THE HARDWARE BOARD OF TRADE, Limited, By JAS. H. GOLDEY, Actuary.

## To Railroad Engineers, Importers and Others.

DAVID OWEN.

Inspector of Steel and Iron Rails, Merthyr Tydfil, England, Undertakes the inspection of Steel and Iron Rails, Permanent Way Materials, &c., &c., in England, Belgium and Germany. Thoroughly practical, of many years' experience. Can give very best of references from chief railroad engineers, merchants and others who have employed me to inspect their railroad materials during manufacture and delivery for the last so years.

Correspondence solicited. Instructions by mail or cable punctually attended to.

ON HAND AND FOR SALE.

Boiler, 42 in. x 10 ft., 28 4-in. Boiler, 42 in. x 20 ft., 28 4-in. zontal Boller, 42 in. x 10 ft., 90 2-in. tubes, 5-16 ical Rollers, 42 in. x 10 ft., 90 2-in. tubes, 5-16 ical Rollers, 5-16

Horizontal Boiler, 42 in. x 10 ft., 90 2-in. tubes, 5-16 shell, ½ heads
Vertical Boilers, with Bazes, Grates and Fixtures:
42 in. x 7 ft., 90 2-in. tubes, shell and fire-box ½ in., heads ½ in. New.
36 in. x 6 ft., 80 2-in. tubes, shell and fire-box 2-16 in., heads 5-16 in. Rebuilt.
30 in. x 6½ ft., 47 2-in. tubes, shell and fire-box 5-16 in., heads 5-16 in. New.
30 in. x 6 ft., 52 2-in. tubes, shell and fire-box 5-16 in., heads 6-16 in. Second hand.
15½ x 36 Horizontal Engine, 9 ft. x 18 in. band wheel. Jacob Naylor.
12 X 24 Horizontal Engine, segment fly wheel 4500 ibs James Moore.
10 x 20 Horizontal Engine, band wheel 7 ft. x 12 in.
12 x 12 Vertical Engine, band wheel 4 in. x 10 in.
A. G. BROOKS & WINEBRENER,
561 North Third St., Philadelphia.

THOSE WISHING TO BUY OR HAVE FOR

#### SALE SECOND-HAND PRESSES or DROP HAMMERS

will please communicate with N. C. STILES.

Middletown, Conn.

#### The Sherman Process Co. 9 Pemberton Square, Boston, Mass., sue Licenses to use the Process for the Manufacture of Iron and Steel

in the Bessemer Converter, Crucible, Siemens Martin, Puddling, Blast and Cupola Furnaces. The use of this Process improves the quality of the product, saves fuel and labor, and does not re-quire any change in furnace or manner of working See page 17 of The Iron Age of Oct. 25th, 1877.

FACTORY

Or requisite buildings will be erected on plot 75x200 feet, on East Eighth Street, near the East River, and leased for a term of, say, ten years. Other New York City manufacturing property Ior sale or to lease. WM. J. FRYER, Jr., Ætna Iron Works

104 Goerck Street, New York.

# Europe. Matheson & Grant's

Address is

32 Walbrook, London, England.

Engineers and Commission Agents for all business relating to engineering and metals in Europe. Telegraph address,

MATHESON, WALBROOK, LONDON.

OPEN-HEARTH STEEL.—A gentleman having six years' experience in one of the leading open-hearth works of this country will be open for an engagement January 1, 1831. Is competent to design, superintend construction and manage works when completed. Address OPEN-HEARTH STEEL, Office of The Iron Age, 83 Reade St., New York.

#### CRUCIBLE CAST STEEL.

Wanted, by an old-established Sheffield firm, a responsible agent with good connections and references, who would buy Tool Steel, &c., for his own account. Apply BOX 40, Post Office, Sheffield, England.

# Sanderson Bros. Steel Co. A limited number of shares for sale by EDWARD FRITH & SON, s41 Pearl street, New York.

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of activ America Arizona Burling Boston Caribou Col., Ch Canada Chicago Colorad Chesape

# Trade Report.

Office of The Iron Age, Wednesday Evening, December 29, 1880. During the past week the financia markets have been active, and, as the rule strong. The money market has become somewhat easier, and borrewers on cal have been accommodated at 4 %, though in some instances 6 % and a commission were asked.

The weekly bank statement was favorable and, as will be seen from the comparison of aggregate averages for two weeks printed below, there is a gain of \$1,531,175 in total reserves, bringing them up to \$3,619,900.

The importations of specie and bullion at this port during the five days ending December 23, inclusive, were \$3,623,287, consisting of \$3,619,470 in gold and \$3817 in silver. as against a total of \$118,116 for the week ending December 27, last year. The importations since the 1st of January and since the 1st of August compare as follows with the movement during the corresponding periods last year :

Since J. 1830.  Gold	1879. \$75,853,707
Total\$72.262,363	\$83,778,409
Gold	1879. \$75,021,982 2,585,149
Total\$67,093,490	\$77,607,131 bonds ad-

vanced 1/8 @ 1/4 %. State bonds were strong and active. Railway mortgages advanced 1/4 @ 41/2 %. There is a constant demand for all classes of desirable investment securities, and the premium they command shows how difficult it is to find investments at much better than 5 %, and how ready capitalists are to take even less when the security is absolute.

The stock market has been strong, with slight reaction on Monday, subsequently more than recovered, and followed by fluc-tuations showing a net gain over last week's New York Mining Stock Exchange: quotations. The principal dealings have been in Western Union, Lake Shore, Erie, Union Pacific, Central Pacific, Wabash, Northwest, Milwaukee and St. Paul, and the coal stocks. We give below the closing quotations of stocks on the active list and of government bonds.

The bank statement makes the following comparison of aggregate averages for the past two weeks :

	Dec. 13.	Dec. 24.	Com	parison.
Loans	293.372,600			\$954,700
Specie	55,677,800	57,686,000		1,408,200
Legal t'nd'rs.		13,300,900		17,500
Tot. reserve.	68,996,200	70,386,900		1,390,700
Deposits	267,629,900	267,068,000	Dec.	551,900
Reserve re-			_	
quired		66,767,000		140,475
Surplus		3,619,900		1,531,075
Circulation	18,474,400	18,431,400	Dec.	43,000
	TOWN STATES	THEODER		

For the week ended December 25:

as follows:

1876. 1879. 1879. 1880. 1880. 1870. 1880. 1870. 1870. 1880. 1870. Since Jan. r....\$281,315,788 \$332,401,862 \$466,037,050 Included in the imports of general merchandise for the week were articles valued

|   |                                | Quantity. | Value.  | GENERAL HARDWAR                      |
|---|--------------------------------|-----------|---------|--------------------------------------|
|   | Anvils                         | 44X       | \$4,145 | GENERAL HARDWALL                     |
|   | Brass goods                    | . 99      | 4,230   | The demand for General Hardy         |
|   | Bronzes                        |           | 8,143   |                                      |
|   | Chains and anchors             | 54        | 1,749   | ing the week has been very light,    |
|   | Copper                         | **        | 15,181  | not unusually so considering that    |
|   | Cutlery                        | 192       | 63,338  |                                      |
|   | Pins                           |           | 240     | holiday times.                       |
|   | Guns                           | X18       | 20,127  | The manufacturers of Wood Sci        |
|   | Hardware                       | 31        | 2,795   |                                      |
|   | Iron, hoop, tons               |           | 8,736   | a meeting last week, at which the    |
|   | Iron, pig, tons                |           | 41,629  | discounts were adopted :             |
|   | Iron, sheet, tons              |           | 3,742   | discounts were adopted .             |
|   | Iron cotton ties               | 1,519     | X,570   | WOOD SCREWS.                         |
|   | Iron ore, tons                 | 3,164     | 11,139  | Dis                                  |
| • | Iron, other, tons              | 2,026     | 45,479  |                                      |
|   | Metal goods                    | 256       | 20,156  | Flat Head, Iron                      |
|   | Nails                          | 5         | X.479   | Bound Head, Iron                     |
|   | Needles                        | 31        | 9,791   | Flat Head, drass                     |
|   | Nickel                         | 10        | 4.714   | Round Head, Brass                    |
|   | Old metal                      | * *       | 927     | Terms cash. No prices guaranteed.    |
|   | Platina                        | 3         | 8,532   | The circulars announcing these       |
|   | Plated ware                    | 5         | 177     |                                      |
|   | Percussion caps                | 7         | 1,649   | in values are dated December 22.     |
|   | Saddlery                       | x3        | 8,478   | A majority of the Tinware Manu       |
|   | Steel                          | 13,422    | 78,989  |                                      |
|   | Silver ore                     | 3         | 26      | houses of the United States held a   |
|   | Silverware                     | 8         | 926     | at Buffalo, N. Y., on the 21st and 2 |
|   | Tin, boxes                     | 30,041    | 145,100 |                                      |
|   | Tin, 9,820 slabs ; 846,837 lbs | 0.0       | 163,606 | with reference to the interests of   |
|   | Wire                           | 1,241     | 11,095  | for the coming year. We are infor    |
|   | Zinc                           | 56,189    | 8,802   | for the coming year. We are mitor    |

EXPORTS, EXCLUSIVE OF SPECI For the week ended December 28:

For the week... \$7,269,771 \$8,554,865 \$7,938,224 Prev. reported. 333,858,429 337,953,009 398,139,461 Since Jan. 1....\$341,128,200 \$346,507,874 \$406,077,685 Government bonds at the close were quoted as follows:

Bid. Asked.

| 0 0 0 B 1000 COUDOH                | -       |
|------------------------------------|---------|
| U. S. 6's 1881 coupon 10436        | 10456   |
| U. S. 5'8 1881 COUDON              | 10156   |
| U. S. 41/2's 1801 coupon 1117/4    | II2     |
| U. S. 4'8 1907 coupon              | 113%    |
| U. S. Currency 6s 1805             | -       |
| U. S. Currency 6g 1896             | - 1     |
| U. S. Currency 66 1897             | -       |
| U. S. Currency 6s 1868             | -       |
| U. S. Currency 6s 1899             | -       |
| The following were the closing que | tations |
| of active stocks:                  |         |
| Bid.                               | Asked.  |
| American District Telegraph 62     | 64      |
| Alton and Terre Haute 40           | 41%     |

| American District Dis | I. Asked. |
|--|-----------|
| American District Telegraph 62   | 64        |
| Alton and Terre Haute 40   | 411/4     |
| A Pref   | 113       |
| American Union Telegraph   | 16 73     |
| Arisona  | 43/       |
| Burlington and Quincy  | V TON     |
| Boston Air Line, Pref 47   | 4 -/9/4   |
| Caribon  | 4774      |
| Caribou 21   | 6 278     |
| Col., Chic. and Indiana Central 20   | 21/8      |
| Canada Southern 773  | 78 1/2    |
| Unicago and Alton  | V6 756    |
| Colorado Coal  | Mec 2016  |
| Chesapeake and Ohio 24   | 2436      |
| rst Pref 34  |           |
| ti ti ad Drod  | 35        |
| Control Paris ad Prof 25   | 16 96     |
| Central Pacific93  | 6 04      |
| Chicago, St. Palli and Minn  | 90        |
| Chicago, St. Louis and New Orleans 41  | 400       |
| Clev., Col., Cin. and Indianapolis. as   | 0436      |
| Denver and Rio Grande  | 9573      |

|    | Everyana Adams   | ***       |
|----|--|-----------|
|    | Express—Adams 119  Wells, Fargo 116  American 63½  United States 52½  Erie. 6344   | 191       |
|    | 4 American 631/2   | 64        |
|    | United States 5212   | 8/        |
|    | Erie   | 50%       |
|    | Pref   554     Pref   9916     Excelsior Mining   83/     Hannibal and St. Joseph   481/     Houston and Texas   1034  | 9034      |
|    | Hannibal and St. Joseph  | 49        |
|    | " Pref. roald  | 103%      |
|    | Houston and Texas  |           |
|    | Homestake  | 29%       |
| k  | Indiana, Bloom, and Western 43   | 44<br>55% |
| ġ. | Illinois Central   | 127       |
| 1  | Illinois Central. 120½ Keokuk and Des Moines. 12 Lake Shore. 137½  | - x434    |
| 7  | Lake Shore   | m 4 m %/  |
| 3  | Little Pitteburgh 1373<br>Louisville and Nashville 87½<br>Louisville, New Albany and Chic 5835<br>Montauk Gas Coal   | 3         |
| C  | Louisville New Albany and Chie 1816  | 87%       |
| e  | Montauk Gas Coal   | 30        |
| •  | Mobile and Ohio 23 Marietta and Gincinnati Pref. 9% Marietta and Gincinnati Pref. 5% Mahhattan Elevated 34 Metronolitan Elevated 774   | 2314      |
|    | Marietta and Cincinnati Pref 9%  | 10        |
| 2  | Manhatan Elevated 34<br>Metropolitan Elevated 107%<br>Mariposa Pref. 1<br>Northwest 125%   | 6         |
| 1  | Marropolitan Floreted  | 34%       |
| 1  | The state of the s | 109       |
| 1  | Northwest  | 11534     |
| ı  | " Pref 1401/8  | 140%      |
|    | New York Central1523/8   | 15234     |
| Ė  | New Jersey Central 82%   | 83        |
|    | Nash and Chattanooga 754   | 76        |
| •  | Northern Pacific   | 34        |
|    |  | 6634      |
| ,  | Ontario Silver   | 34        |
| ֓  | Oregon Navigation  | 135       |
|    |  | 30%       |
| •  | Pref. 3778   94   Peoria, Decatur & Evansville 27½   Pacific Mail 50   Panama 270  | 96        |
| 3  | Peoria, Decatur & Evansville 27%   | 28        |
| k  | Pacific Mail 50  | 50%       |
| 2  | Panama210  | 220       |
| •  | Pref 52  | 53%       |
|    | Pacient Mail   | 5376      |
| •  | Rome, Watertown & Og 281/2   | 30        |
|    | Standard 23  | 2334      |
| ž  | Silver Cliff   | 13/4      |
|    | St. Paul.  | 22454     |
| )  | " Pref 193%  | 194       |
| ,  | San Francisco 44   | 4436      |
|    | San Francisco  | 63        |
|    | Stormont 186 PTel 98%  | 99<br>3¾  |
| •  | St. Paul and Duluth  | 35        |
|    | " Pref 70  | 74        |
|    | Texas Pacific43½   | 44        |
|    | Wahash and Pacific   | 45%       |
|    | Pref 8736  | 87%       |
|    | Kansas and Texas 44%   | 45        |
|    | Stormont   3   3   3   3   3   3   3   3   3   | 107%      |
|    | Rock Island  |           |
| j  | Omaha  | 35<br>49% |
| ١  |  | 101       |
| J  | Erie and Western 4134  | 4136      |
| 1  | Ohio Central   | 84        |
|    | New Central Coal 2815  | 80        |
|    | Morris and Essex   | 8x        |
|    |  | 01        |
|    | MINING STOCKS.   |           |
| I  | The following were the quotations  | bul-      |
|    |  |           |

| New York Mining Stock Exchang | e:    |       |
|-------------------------------|-------|-------|
|                               | Bid.  | Asked |
| Amie                          | 54    |       |
| Alta Mont                     |       | 8.6   |
| American Flag                 |       | 2     |
| Buckeye                       | 10    | 9     |
| Bull Dom                      | 4.05  | 4.7   |
| Bulwer                        | 1.50  | 4.7   |
| Boulder                       | 35    | -     |
| Calaveras                     | 20    |       |
| California                    | 8.55  | r.6   |
| Consolidated Virginia         | 8.10  | 9.1   |
| Consolidated Pacific          | 00    |       |
| Chrysolite                    |       | 6.5   |
| Eureka C                      |       | 99.0  |
| Findley                       | 27    | -     |
| Great Eastern                 | 26    | 9     |
| Gold Placer                   | 38    | 4     |
| Gold Stripe                   |       | -     |
| Goodshaw                      | 90    | -     |
| Granville                     | 8     |       |
| Green Mountain                |       |       |
| Hukill                        |       | 1.5   |
| Horn Silver                   | 12.50 | -     |
| Independence                  | 25    | ***   |
| Lacrosse                      | 28    | 3     |
| L. Chief                      | 80    | 3     |
| Little Pitts                  | 2.60  | 9.1   |
| Navajo                        | 60    | -     |
| N. Bell I.                    | 45    | 100   |
| Red Eleph                     | 43    |       |
| Rappah'k                      | 13    | 2     |
| R. Sun                        | 1.60  | x.6   |
| South Hite                    | 40    | 4     |
| Silver Cliff                  |       | -     |
| Sutro                         |       | X.7   |
| Unadilla                      | 10    | 1     |
|                               |       |       |

#### GENERAL HARDWARE.

The demand for General Hardware dur ing the week has been very light, although not unusually so considering that these are holiday times.

The manufacturers of Wood Screws held a meeting last week, at which the following discounts were adopted :

WOOD SCREWS. 
 Flat Head, Iron
 50

 Bound Head, Iron
 45

 Flat Head, drass
 50

 Round itead, Brass
 40
 Terms cash. No prices guaranteed.

The circulars announcing these changes

A majority of the Tinware Manufacturing with reference to the interests of the trade for the coming year. We are informed that the best of feeling prevailed. The meeting adjourned to January 5, to be held in this city, at which time it is expected that all the manufacturers of Stamped Tinware in the country will be present, in furtherance of the object initiated at the Buffalo meet-

We have received the following notice : PHILADELPHIA, January 1, 1881

To whom it may concern: Mr. William Disston has this day become associated with us as a member of the firm. The title of the firm remains unchanged.

HENRY DISSTON & SONS. The above firm have just issued their 1881 illustrated catalogue and price list. They invite attention to the new goods added to their assortment since the publication of their last book, and also to the changes in list prices of many of their goods. The changes in lists have been made in most cases with a view of simplifying their discounts, and results in two discounts, applying to their entire line, which formerly required six or seven. The following dis-

count sheet applies to the new catalogue. HENRY DISSTON & SONS,
SAW, TOOL, STREL AND FILE WORKS.
Front and Laurel Streets,
PHILADELPHIA, January 1, 1881.
Dis. per cent. Pages 8 to 25, inclusive....

1 26 to 81, "
2 82 to 92, "
Page 92, Files..... As some parties are imitating the goods

manufactured by us by copying our numbers, styles and names, thereby deceiving the mechanic who desires our make of Saws, we would request our customers to be careful in making their purchases. We would also ask you to please examine the pear list. also ask you to please examine the new list carefully before ordering, as various altera-tions and additions have been made. We guarantee to produce a better article at the same price than any other house in the world.

same price than any other house in the world.
All goods bearing the brand of Henry Disston & Sons are fully warranted.
The above will be factory rates for the coming season, and bills unpaid by the 20th proximo will be drawn for at sight.
HENRY DISSTON & SONS.
All discounts and prices have reference to

All discounts and prices have reference to our list of January 1, 1881. All former quotations are hereby cancelled.

The demand for Nails was light during the week, indeed hardly sufficient to test the strength of the recent advance. We quote 10d. to 60d. \$3 per keg, net. Orders for 200 kegs and upward are subject to an allowance of 10 cents per keg.

The following explains itself :

Office of Black Diamond Film Works, Philadelphia, Dec. 29, 1880. We beg to acquaint the Hardware trade that in conformity with a resolution made at the meeting of the File manufacturers in New York December 15, 1880, on and after January 1, 1881, the price of one round edge Mill Saw File will advance 7½ per cent it two wound edges. cent.; two round edges, 15 per cent.
G. & H. BARNETT.

The American Screw Co. will issue, under date of Jan. 1, 1881, the following revised price list for Hand Rail Screws:

| Length, Size. 5-16 in.         | Price per<br>5-16 in.<br>2 Nuts. | gross<br>¾ in.<br>1 Nut. | ¾ in.    |
|--------------------------------|----------------------------------|--------------------------|----------|
| 4 inch \$9.00<br>4½ inch 10.00 | \$10.25                          | \$11.25                  | \$13 5   |
| 5 inch                         | 13.50                            | 12.50<br>13.50<br>14.50  | 14.5     |
| They will also issue           | e, under                         | same de                  | ate, the |

discount sheet and circular which we print

PROVIDENCE, January 1, 1881. To the Hardware Trade : Withdrawing and canceling previous quotations at variance from following, we at present quote on goods in stock :

| Sagara are account.                                    |           |         | -           |             |
|--|-----------|---------|-------------|-------------|
|  |           |         | Dis.        | per cent    |
| Iron Black, Iron T                                     | inned     |         |             | cal 71      |
| Block and Carriag                                      | o Rivets  |         |             | soft al     |
| Rivets in Bulk   | O YELVAOO |         |             | 500077      |
| Butters in Dulk  |           | ******  |             | 300072      |
| Burrs<br>Philadelphia Patte                            |           |         |             | 300071      |
| Philadelphia Patte                                     | ern Tir   | e Bolt  | s, new F    | hiladel-    |
| phia list  |           |         |             | 70001       |
| Bay State Tire Bol                                     | ts, com   | mon lin | st          | 80&         |
| Plat Head Iron Ma                                      | chine S   | crews   |             | 60          |
| Round " "  | 66        | 4.6     |             |             |
| Flat Head Brass  | 64        | 86      |             |             |
| Plat Head Iron Ma<br>Round "Flat Head Brass<br>Round " | 66        | 68      |             |             |
| Taps for Machine                                       | Garawa    |         | ******      |             |
| Chara Dalta  | DCIOWB.   |         |             | 33          |
| Stove Bolts  |           |         |             |             |
| Sink Bolts   |           |         |             | 40          |
| Pointed Wires  | *******   | ******  |             | 40          |
| Tapped Nuts  |           |         |             | 20          |
| Hand Rail Screws.                                      |           |         |             | 60&xc       |
| Coach Screws (by                                       | the keg.  | rso lb  | s)          | 60          |
| Fence Wire, No. 9                                      |           |         | 2%c. p      | er lb. net. |
| With special add                                       | itional a | Macour  | tu for la   | ree oman.   |
| titles.  | seromer ( | ANDUOTE | 100 101 100 | 18c duam.   |
|  | laws !    | Panlah  |             | A to Man    |
| Terms, cash 30 (                                       | mys.      | reign   | prepa       | d to New    |
| York, Boston, Phil                                     |           |         |             |             |
| on Rivets, to princ                                    | ipal poi  | nts on  | or east     | of Missis-  |
| sippi River. Exce                                      | pt on R   | ivets,  | reight is   | s not pre-  |
| paid to other citi                                     | es than   | abov    | e-mentio    | ned, but    |
| will not exceed rate                                   | es from   | New Y   | ork city    | . Prices    |
| not guaranteed, an                                     |           |         |             |             |

to rates ruling at time of shipment. Soliciting your orders, which shall have our best attention, we remain, yours very respectfully,

AMERICAN SCREW Co. respectfully,

SPECIAL NOTICE.

To reduce our stock we will sell a limited quantity of Rivets, Bay State Tire Bolts and Fence Wire at exceptionally low prices. We ask an opportunity to name prices for any orders you may have to give before you place them elsewhere. There can be no risk in buying freely for future requirements on the terms we will offer. Soliciting correspondence with you upon the subject. correspondence with you upon the subject, we remain, yours respectfully,

AMERICAN SCREW Co.

Providence, R I., January I, 1881.

We have received the following circulars: SPRINGFIELD, MASS., December 28, 1880.

To the Hardware Trade: Our arrangement with Messrs. Sargent & Co., New York, for the sale of the Genuine Stebbins Molasses Gates, expires January 1, 1881, after which date we shall supply the trade direct. For prices and discounts, address, E. Stebbins Mfg. Co., Brightwood P. O., Springfield, Mass.

MEW HAVEN, CONN., December 30, 1880. houses of the United States held a meeting houses of the United States held a meeting on and after January 1st, 1881, my discount on Ives' Patent Burglar Proof Door Botton former price. Terms, 60 days.

I shall aim to have my goods warrant a £3. 2/6.

continuance of your liberal patronage. Respectfully yours, HOBART B. IVES.

HARTFORD, CONN., December 13, 1880 GENTLEMEN: Having bought all the Machinery, Tools and Patents of the late Hammond Hammer Company, we solicit a con-tinuance of your valued orders, which shall have our careful and prompt attention.

Assuring you that the goods shall be kept up to the highest possible standard of excellence and finish. Very truly yours,

THE HARTFORD HAMMER Co.

PHILADELPHIA, December 22, 1886 Although it is the duty of both manufaturers and dealers in patented goods to fa-miliarize themselves with the various patents upon goods which they manufacture or sell, that they may know to what extent they are liable, but as some Lawn Mowers have been and are still being manufactured and upon the market, which our attorneys inform us inquestionably infringe upon patents we hold, we wish to state we intend to protect our rights, and for the information of the manufacturers and dealers in Lawn Mowers, we print below a copy of the claim of the George W. Jennings patent, as re-issued March 18, 1879. Justice to ourselves compels us to enforce our rights, which have been disregarded for the last 20 months, and we will commence suit against parties disregarding them, no matter whether manufac-

turer or dealer. LLOYD, SUPPLEE & WALTON. patent, re-issued March 18, 1879.

1. The combination, in a hand or lawn

mowing machine, of two cupped or box wheels, gearing within the periphery of the driving wheel, covering plates covering the whole open face of said box wheels and gearing, and a cutting apparatus extending across the machine, and suspended at each end by said covering plates from the axles of said wheels, substantially as shown and

end by said covering plates from the axles of said wheels, substantially as shown and described.

2. The stationary side plates fully covering the open faces of the cupped or hollow carrying wheels, said coveing plates being connected from side to side by a cross rod extending from one to the other, and to which both side plates are rigidly secured.

3. The combination, in a hand or lawn mowing machine, with two supporting wheels and gearing within the periphery of the driving wheel, of a pivoted frame directly supporting the cutting apparatus, and inclosing and protecting the gearing for driving the same, substantially as described.

4. A hand or lawn mowing machine in which are combined two supporting wheels, one upon each side of the machine, internal gearing for driving the cutting apparatus, side plates fully covering and protecting the internal gearing, a cutting device secured at both ends to said side covering plates, and the handles for pushing the mower forward, also secured to said side covering plates, substantially as shown and described.

5. The combination, in a hand or lawnmowing machine, of the stationary side plates, fully covering the open faces of the cupped or hollow carrying wheels, with a cross red extending from one side plate to the other, and to which both side plates are rigidly secured, and a cutting apparatus supported from and also connecting said side plates, substantially as shown and described.

6. The combination, in a hand or lawnscribed.

6. The combination, in a hand or lawnscribed.

scribed.

6. The combination, in a hand or lawnmowing machine, of the side covering plates
mounted on the axles of the main supporting
wheels, and inclosing and supporting the
gearing, with the handles for pushing the
mower forward secured to said side covering

7. The combination, in a hand or lawn-7. The combination, in a hand or lawnmowing machine, of supporting wheels upon
each side of the machine, turning loosely
upon their axles, internal gearing, side
plates, fully covering and protecting said internal gearing, axles rigidly secured to said
side plates, and on which said supporting
wheals revealed and a sour gear or pinion wheels revolve, and a spur gear or pinion, also supported in position by said side plates and engaging with the cogs of the internal gearing, to produce the motion from which the cutting device is driven.

Samuel Coulter, of the firm of Coulter, Flagler & Co., of this city, died yesterday morning, in his sixty-fifth year. Mr. Coulter was one of the oldest Hardware men in New York city, having been in the business, boy and man, for more than half a century. In his long connection with the trade Mr. Coulter made many friends, by whom he will be pleasantly remembered for his sterling business as well as social qualities. It is probable that the business of which he was the head will be continued without interruption.

#### BRITISH IRON MARKET.

[Special Report by Cable to The Iron Age.] LONDON, Wednesday, December 29, 1880, Scotch Pig.—During the week prices have fluctuated in both directions, the market closing weak, with but little doing. The following are to-day's quotations, showing a decline of 2/ in Gartsherrie, and 6d. in both Coltness and Eglinton.

Gartsherrie ..... 61/ The total stocks of Pig Iron in Scotland

reach 730,000 tons. Manufactured Iron.—There is but little mand, and quotations are nominal. Best

Staffordshire Bars £7 @ £7. 10/. Steel Rails—The market is active, with a steady demand. Prices are steady. Ordi-

nary Sections are quoted £6 @ £6. 10/. Iron Rails.—There is but little demand. Prices are firm. We quote Welsh £5 @

Old Rails. -Offerings are light and sales small. Prices are steady. Old Ts. £3. 10/.

#### IRON.

American Pig.-The tone of the Iron market, so far, at least, as the domestic product is concerned, is strong, and the inquiry is fair, considering the fact that we are in the middle of the mid-winter holidays. The only transaction outside of a fair business in small parcels that has come to our notice during the week is a sale of 12,000 tons Thomas Iron, in equal proportions of Nos. 1 and 2 Foundry and Forge, at our quotations. We quote: Foundry No. 1, \$25; Foundry No. 2 X, \$22; Gray Forge, \$20 @ \$21.

Scotch Pig .- The demand for Scotch Iron has been light, and prices of all brands are a shade lower than we quoted a week ago. The only sale we hear of is 200 tons Gartsherrie at \$22. We quote: Eglinton, \$21.50; Carnbroe, \$22.50; Coltness, \$23.50 \$24; Glengarnock and Gartsherrie, \$22.50 @ \$23.

Rails.—Considerable inquiry for Steel Rails.—Considerable inquiry for Steel Rails is reported, but if any transactions, either in foreign or domestic, have been closed during the week they have been kept quiet. We repeat last week's figures, viz.: Iron, \$46 @ \$49, and Steel Rails, at mill, \$60 @ \$62.50, according to location, torms, \$60 @ \$62.50, according to location, terms,

Old Rails.-No new business in Old Rails has come to our notice. We quote the mar-

Copy of the claims of George W. Jennings' ket \$26.50 @ \$28 for T's and D. H. respectively.

> Scrap.-In the absence of business we quote, nominally, \$28 for No. 1 Wrought, from yard.

#### METALS.

Copper.—The market since our last report has been quiet but firm, sales being limited to 100,000 pounds Lake Superior at 19% f. The companies are out of the market and the clearer contains in the companies are out of the market and the clearer contains in the companies are contained. 19%. the the closing quotation is nominally 19% @ 19% to The statements of large sales during the past few weeks for future delivery to consumers comprise all the con-tracts made during the last two or three tracts made during the last two or three months. As such, a total of 10,000,000 to 12,000,000 pounds at 10¢ may be accepted as approximately correct. London cables Best Selected £66 and Chili Bars £61. 10/. News has reached us having reference to the Rio Tinto Copper Co., of Huelva, Spain, and its affairs, which seem to be more flourishing than event the second to the rest extensive will be a series to the rest of the rest than ever; the next statement will, there-fore, not unlikely show good progress made in Copper production in that quarter. The Northwestern Mining Journal publishes a statement of the amount of mineral and statement of the amount of mineral and Refined Copper shipped during the season of 1880. The total foots up to 23,961,448 pounds of Refined Copper and 14,323,781 pounds of "mineral." Manufactures remain as under: Bottoms, 31¢; Braziers, according to size, 28¢ @ 34¢; Circles, 31¢ @ 34¢; Segment Sheets, 31¢; Firebox Sheets, 28¢; Sheathing, 26¢; and Bolt Copper, 28¢.

Tin .- The market, after our report of last week was written, still remained rather weak, but a little stronger feeling has deweak, but a little stronger feeling has developed since. The pressure to sell early in the week led to sales of some 300 to 400 tons Straits at about 19¼¢, the closing figure for which is 19¼¢ @ 19½¢; Australian, 19¼¢ @ 19½¢, and English Common, 20¢—all large lines. London cables Straits £91, and English £94. Tin plates have been firm, but with little doing in a large way; the consumptive demand is good for the season. We quote toward the close large lots, erdinary brands, per box, Charcoal Bright, \$5.87½ @ \$6; ditto Ternes, \$5.25 @ \$5.50; Coke Tin, \$4.87½ @ \$5, and ditto Ternes, \$5. The feeling at Liverpool is good—Charcoal at 20/ and Coke at 15/.

Lead .- Nothing has transpired dur-Lead.—Nothing has transpired during the week, except in a jobbing way. We quote large lines nominally \$4.20 (@ \$4.25, small lots having been taken at the larger figures. In Refined but little transpires. We quote the same \$4.05 (@ \$4.75, as low a range as can be given in the absence of any important business. Manufactures are quoted as follows: Sheet Lead, 7¢; Lead Pipe, 6½¢; Tin-lined ditto, 15¢, and Block Tin Pipe, 40¢.

Spelter and Zinc .- A better feeling is spetter and Zinc.—A better feeling is noticeable, and Common Domestic Spelter is stronger at  $4\% \circ @ 5\%$  for Western, while Silesian is nominally worth  $5\% \circ @ 5\% \circ$ . Advices per cable from abroad report a rising market. Sheet Zinc is worth 7%.

Antimony.—Greater firmness is observable, in response to favorable accounts from England. We quote at the close: Cookson, 15½\$\phi\$ @ 16\$; Hallett, 14¾\$\phi\$ @ 15\$, and Johnson, 15\$\phi\$ @ 15\phi\$\$.

Bruce & Cook, importers of metals, No. 190 Water street, have issued the following New Year's greeting to their friends in the trade, which is accompanied by a handsome office calendar for 1881:

#### HAPPY NEW YEAR-1881.

We wish you a "Happy New Year." It is without the exuberant hope that seemed already realized, and only to be grasped, that characterized our last New Year's greeting, for, in our line of business, 1830 has disproved all our prophecy, both in price and results, and has been a year of disappointment and shrinkage.

But it is satisfactory to know that there were substantial elements of prosperity entering into the sanguine anticipations of the last New Year that have not belied our the last New Year that have not belied our hope—that would have supported any reasonable movement of advance. And now, if the lessons of 1880 have been fairly learned, will enable us to retrieve its misfortunes in '81.

We commenced last year at the top of the inflation; we commence this one at the lowest depth of its collapse. We may surely hope that any change from this will be for betterment. Furthermore, the collapse itself has not been without its advantage; Scrap.—The offerings are moderate and the high price of the "boom" had checked sales small. We quote Wrought steady at since been resumed, and encouraged the development of many that would otherwise have been dropped.

This has been notably the case with our railroad interests, which, checked by a cost of \$68 per ton for rails, resumed activity at a cost of \$45 per ton, and are now developing enterprises of such enormous magnitude as promise not only to use up the full cs ity of eight or nine hundred thousand of American rail mills, but to help our Eng lish friends as well.

The bountiful crops which the Lord's good providence has poured forth over the land the past few years, are beginning to be dis-tributed through all the channels of industry, and the accumulated capital that has been lying so long idle in our bank

waults, to find profitable employment.

The stocks held by speculators have been mostly thrown upon the market by failure or forfeiture, and are being rapidly absorbed.

The volume of business done in 1880 shows very large increase over former years, and its abundant crops have furnished material

promise our best endeavors to serve you. Respectfully yours, BBUCE & COOK,

190 Water street, New York, January 1st, 1881.

#### EXPORTS

Of Hardware, Iron, Machinery, Metals, de., from the Port of New York, for the Week ending Dec. 28, 1880:

Sew. ma., cs.. 29 Petl., gais...3599 Mf. iron, pkgs 6 Mach'y, pkgs. 19 Hdw., cs..... 36 \$926 448 69 Val. \$661 504 55 164 84 100 Quan. ...5445 8, 18 8. 98 1. 29 28 4 ... 30 Mt. iron, piggs. 18
Mach.oil, gals. 98
Glassw're, cs. 28
Clamp gds., pgs. 4
Neils, kegs. 30
Tinware, cs. 2
Hdw., ce. . 55
Mach'y pkgs. 5 19 36 4 741 55 110 Genoa 34 307 83 Hdw., cs.... Trieste. Amsterdam. Lab. ofl, bbls. 50 50 Ptim. gals.354,939 35,50 Ptlm., gals.627,435 57.549 Falmouth. Dutch West Indies. Hdw., cs..... Sew. ma., cs.. M.sheath'g,cs Glassware, cs Granitewe, cs 9 Mexico. Micostos.

Ptim., gals. 51,5ce
Glasswe, est. 74
Mails, kegts. 136
Cutlery, os. 16
Pistols, cs. 9
Mach'y, pkgs. 16
Lamps, pkgs. 5
Tacks, cs. 10
Slow. maa., cs. 66
Arms, cs. 1
Bolting, balo. 1
P. caps. cs. 1
Shot, sacks. 40
Tinware, cs. 9 861 455 \*,368 650 47 53 75 Hamburg. Sew. ma., cs. 796 17, Lub. oil, bbis. 220 5, Clocks, bxs... 35 Mew., cs... 82 2, Revolvers, cs... 41 4, Ag. imsp.,plags r Pltdware, cs... 2 Tinware, cs... Mf. iron, pkgs Cartridges, cs Brass gds., cs Hdw., cs.... Bremen. Ptim., gals. 452,500 40,725 Ag. imp., pkgs 19 1,510 Sew. ma., case 1 75 Mf. iren, pkgs 17 303 09.... Africa. Iron safs . . . . reco Ptim., gals . . reco Hdw., cs . . . 8 Clocks, cs . . . 3 Antwerp. Telephones, es 5 304 Belting, bxs.. 3 684 Ptrm., gais.448,800 40,392 Dutch East Indies. Argentine Republic. Ptlm., gals. 310, 200 38,700 Rotterdam. Ag. imp., pkgs 21 1,247 Clooks, case.. 1 16 w. cs. . . . 36 619 mps, pkgs. r 50 wk', cs. . . 5 3,100 Bristol. Clocks, bxs... 40 Hdw., es..... 1 Copenhagen. Hull. Mf. iron, pkgs. 14 Hdw., pkgs... 3 Clocks, bxs... 41

Prim. gals. 133,079 12,642 Liverpoot. Clocks, bxs... 176 5,264 Lub. oil. bbls. 800 5,300 Lub. OII. bbls. 500 5,300
Ag. imp.,pkgs 5 390
Pean., geain. 53,391 6,407
Pildware, cs. 2 339
Mf. iron, pkgs 14 119
Rifles, cs. . . . . 90 11,400
Mach'y, cs. . . . 30 33,455
Hdw., 08. . . . 180 5,234
Sew, Bh., Cs., 247 2,381 Mf. iron, pkgu Clocks, cs. . . . Belling, pkgs. Glassw're, cs. Mach'y, cs.... Cartridges, cs Hdw., cs... 180 5,234 Sew. ma., cs.. 257 3,381 Guns, case... 1 64 Gibraltar. Wire gds., cs., British North Am town Colonies. London. Coal, tons.... 230 Ag.imp., pkg 2 I. wheels... 6 Petim., gals.. 500

Mf. iron, pkgs 103 2.016
Pel., gala. 1,06,500 10<sup>2</sup>, 33
Clocks, bxs... 449 16,659
Hdw., 62... 400 8,494
Mach y, 03... 50 8,008
Sew. man, 68. 470 14,507
Glaasw'e, cs.. 62 1,215
Pumps, pkgs.. 19 1,400
Plb. mt., pgs.. 15 167
Watches, cs.. 5 1,800 14,507 1,215 1,400 167 1,800 4,100 Watches, cs... Tel. mtl., pgs. Saddlery, case L mp g'ds, pg. Oil stone, cs... 657 Wire, pkgs... 189 Surv. inst., cs. 2 Ag.imp., pkgs 84 Braasware, cs. 21 2,020 62 5,608 1,327 Brassware, es 21 Cge, mtl., pgs 2 Lub. oil, bbls. 410 Metal gds., cs. 4 Unba.

Hdw., cs... 108
Mach'y, cs... 50
Iron, piggs... 5
Sew. ma.. cs. 49
Nails, kegs... 10
Glassw'e, cs... 4
Pilm., gals... 100
Brass gds., cs. 1
Ag. imp., pigs. 1 2,431 331 90 40 174 306 Ag. imp.. pkgs Clocks, bxs.. Belting, case. Brazil.

Pilm., gals.51,000 Macny., cs...... 4 Clooks, cs...... 47 Mf. iron, pkgs 200 Sew. ma., cs... 14 Pitdware, cs... 4 Pistols, case... 1 Wringers... Machy., cs... Nails, cs... Carriages Tacks, cs... British Hondorus. Machy., cs... 3 Saddl-ry. cse., 1 Carte, pgs 12 Nails, kegs. 15 Hdw. cs. 7 Mf. iron, pgs. 13 Ftlm., gals. ...1597 Glassware, cs. 9 re, cs. 23 China. Cartridges, os 11 Rifles, os..... 4 245 611 Constantinople.

British Possessions in Africa. United States of Ou-Salonica. Ptlm., gals. 194,910 14,750 Beyrouth. Ptlm., gals.... 2009 250 Haere. Pitdware, cs. . 5 500 Machy., cs. . 24 3,000 Gutlery, cs. . 2 218 Ag. imp. pkgs 88 4,677 Mf. iron, pgs. 8 1,000 French West Indies. Glassw'e, c3.... 10 83 Ptlm., gals...1000 160 Machy., pgs.. to Ag. imp.,pkgs 7

Revolvers, cs. 9 1,460
Th ware, c1... 6 86
Mf. iron, pkgs 1/5 2,178
Sow. ma., c8... 107 3,168
Harness, c3... 7 3,168
Harness, c3... 7 3,168
Harness, c3... 1 57
Mf. iron, pkgs 12 5/
Glassw'e, cs... 82 842
Nails, kegs... 35 275
Hdw., cs... 233 4,795
Tel gdr., pgs... 4 210
Powder, Rus. 434 1,002
Watches, c3... 9 261
Wire, spools... 707
Ag. fmp., pkgs 21 267
Wire, spools... 9 477
Ag. fmp., pkgs 21 267
Firearms, cs... 7 1,409
Clocks, c8... 11 400
Yel. met., cs... 8 570
Lead, bdle... 1 61
Carriages... 2 558 Marsoilles. Ag. imp., pgs. 8 391 Lub. oil, bbls. 190 2,285 Machy., cs.... 2 75 Porto Rico. Nails, kegs... 102 330 Ptim., gais...3000 386 Cisplatine Republic. Powder, lbs..e500 500 Ptlm., gals..30,000 3,800 Ag. imp., pgs. 6 75 Hayti. Contral America. gals...6812

Idw., cs. Iron, pkgs.... Nails, bxs.... Wheels, pairs Iron tanks.... Mach'y, pkgs. Fenanuola.

IMPORTS Of Hardware, Iron, Steel and Metals into the Port of Now York, for the Week ending

December 28, 1880 : Scovell Mfg. Co. Rods, bdls., 4 Tillottson L. G. & Co. Wire, gal., lots, 3x3 Williamson Jas. Hardmars. Tillottson L. G. & Co.
Wire, gal., lots, 313
Williamson Jas.
Pig, tons, roe
Order,
Bars, 568
Bundles, 20
Mach'y, cs., 10
Wire rope, coils, 7
Rod, lots, 283
Cotton ties, bdls., 820
Manganese Iron,
cks., 528
Spiegel, lobs, 15
Wire, coils, 230
Wire, coils, 230
Wire, rods, bdls., 52
Pig, tons, 330
Wire rods, bdls., 567
Hoops, bdls., 722

Steet. Boker Hermann & Co. Cases, 30 Casks, 2 Calhoun, Robbins & Co. Calhoun, Robbins & Co Cases, 1 Curley J. & Bros. Cutlery, ca., 1 Casks, 2 Drexel, Morgan & Co. Arms, cs., 8 Friedman A. & Co. Mdse., pkgw., 2 Field Alfred & Co. Mdse., pkgw., 2 Arms, cs., 9 Chains, cks., a5 Casks, 1

Casks, 1 Folsom H. & D. Cases, 15 Hartley & Graham Mose pkgs, 1 Hartley & Cranam,
Mise., pkgs., z
Harmer, Hayes & Co.
Mise., pkgs., z
Howard Bros. & Read,
Cases, 16
Livingston W. & F.
Grindstones, cks, 15
McCoy & Saunders,
Mise., pkgs., z
McKinless J. A. Steet. Abbott J. & Co.
Pkgs., 15
Pkgs., 15
Pkgs., 140
Carey & Moen,
Wire, bdls., 231
Bundles, 59
Jackson N. B.
Cases, 13
Bundles, 167
Moss F. W.
Bundles, 76
Bars, 39
Prosser Thos. & Son
Bars, 47
Bands, 75
Case, 1
Spring, bdls., 216
Wodford W. O.
Bundles, 224 Abbott J. & Co. McKinless J. A.

Cases, 2

Moores J. P. Sons

Mdse, pkgs, 2

Gun stocks, cs., 400

Merchants' Dispatch Co.

Cases, 4

Casks, x

Gun barrels, cs., x

Guns, cs., 8

Reed & Barton,

Mdse, pkgs., 73

Scovering, Daly & Gales

Cases, 6

Squires H. C.

Guns, cs., r Bundles, 224 Guns, os., i Von Cleff & Co

Cases, 3 Bars, 13 ashburn & Moen Mfg. Co. Rods, bdls , 406 Von Cieff & Co.
Mdse., pkgs., 7
Ward Asline,
Cases, 6
Wetzler M.
Mdso., pkge., x
Wlebusch & Hilger
Hdw. Co.
Pkgs., 67
Order. der, Rods, 5657 Scrap rails, pcs., 2034 Scrap, railway leaf spring, tons, 24 Wire, pkgs., 2313 Ressemer wire, Orde ler, Arms, cs., 52 Cases, 10 Grindstones, 74 Bales, 2 pkgs., 850 Blooms, 474 Metals. Iron. Alexandre F. & Son

Alexandre F. & Son,
Lead pipe, bdls., 80
Brown V. H.
Tin plates, bxs., 214
Byrne Jos. & Co.
Tin plates, bxs., 650
Canadian Bank of Com.
Tin, slabs, 577
Cort N. L. & Co.
Tin plates, bxs., 1461
Dicksrson, Van Dusen &
Co
Antimony, cks., 7
Palps, Dodge & Co.
Tin plates, bxs., 268
Black taggers, bxs. Bank of Nevada, Rails, 2165 Baring Bros. Pig, tons, 200 Brown Bros. & Co. Wire rods, wire rous, ling
1695
Geses, 1875
Gorbin P. & F.
Fig, tens, 100
Drexel, Morgan & Co.
Ore, tons, 847½
Pig, tons, 175
Honderson Bros,
Fig. tons, 100
Irwin R. & Co.
Irwin R. & Co.

8a 596

Glasgow.

British West Indies

Lamp gds. pgs 5 Nails, kegs. 253 Ag. imp.,pkgs 3 Pum., gals. 19,791

Ag. imp.,pkgs 3
Ptim., gals., 19,791
C'ge mtl.,pgs. 19
Hdw., cs.... 65
Glassw'e, cs... 48
Sew. ma., cs.. 6
Cartridges, cs. 2

Carriage..... r Pltdware, cs.. 2 Wire, spools.. 25 Mf. iron, pkgs. 5

Seville.

Ptlm., gals, 169,458 16,220

British Australia.

421

46 36

Irwin R. & Co.
Lig. tons, soo
Knausche & Downing,
Mach y, pkgs, 164
Lundberg G.
Bars, 202
Boxes, 1074
Marvel W. D.
Ore, tons, 316
Mason J. W. & Co.
Wire rope, coils, 8
Naylor & Co.
Rods, bdls., 62
Phelps, Bodge & Co.
Sheet, bdls., 130 Lemon, Bashe & Co. Tin plates, cs., 2 Order, Tin plates, bxs., 11, 18; Lead, bars, 182 Copper, bars, 1265 Tin, bdls., 5 Tin, slabs, 2180 Tin, ingots, 6/7 Scrap zinc, pkgs., 62 Brass, cks., 1 Antimony, cks., 40 Tin plates, cs., 6 Tiu leaves, cs., 5 Tin plates, cs., 2

There is but little Coal coming down and but little is called for by the trade. Supply and demand are about equal, and the mar-ket is, in consequence, very quiet. In spite of the hard storms and cold weather, dealers in and about the city are buying from band to mouth, and we hear of very light stocks in all directions. Manufacturers and others outside the city who usually buy large quantities of Coal, are apparently taking account of stock and waiting until after the holidays to make their orders for winter's supply. Coal merchants here in the city are predicting a rush for Coal as soon as January opens and say that the prices are likely to be much better than at present. It seems hard to understand how this can be, in view of the fact that we have had so large a production this year in addition to the heavy stock which was carried over from last year, and the mines are in condition to send an immense tonnage to tide at any moment the market may demand it. The larger sizes are not as much called for as the small. are not as much called for as the small. Just at the present time the domestic trade takes up the attention of the market. The Western trade continues to be very brisk. Complaints are constantly heard that the Coal is a long time on the heard that the Coal is a long time on the way, and that skipments are delayed beyond reason. Prices in this city are unchanged. The larger Coals are nominally at the circular, though the selling price is hard to find. The free-burning Lump, Grate and Egg are quoted as usual at about \$4. Stove of all kinds is quoted at \$4.45; the actual price is said to be \$4.25. Chestnut is nominally \$4, but is sold for less. Freights to the East are still high, and Boaton is quoted at \$1.60. Sound freights are ton is quoted at \$1.60. Sound freights are said to be somewhat easier. In the harbor there are plenty of boats, and freights are

> OLD METALS, PAPER STOCK, &c. We have no change to note in the market

for Old Metals. The purchasing prices of fered by dealers are as follows: @ \$0 17 @ .14 14 @ .00 14 @ .03 14 15 @ .04 .03 .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .03 14 @ .04 .04 @ .05 14 @ .0 a 18... Brass, heavy .... Brass, light ..... Composition, heavy..... Lead, heavy.....

Pewter, No. 1
Pewter, No. 2
Wrought Iron
Light do
Stove Plate
Machinery do
Grare The prices current for Rage, &c., are as follows Canvas, Linen .... White Cotton, New ... No. 2...

146. @ 46.
215c. 66.
215c. 66.
416c. @ 415c.
21c. @ 3c.
14c. @ 11c.
21c. @ 21c.
21c. @ 21c.
21c. @ 3c.

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., | PHILADELPHIA, Dec. 28, 1880. Pig Iron.-Business during the week has Pig 1ron.—Business during the week has been very quiet, and is likely to continue so until after the New Year's holiday. Prices are in all respects unchanged, and sales have been made at the same figures as quoted during the past two weeks. In some quarters there is an impression that the market will show more strength in course of next worth, ear the requirements of huyers are month, as the requirements of buyers are large, and heavy purchases, it is thought, will lead to an improvement in prices. This, however, will probably depend upon the con-dition of foreign markets, and, without some lecided change in the character of advices from abroad, it will be very unsafe to predicate upon higher prices here. There large output from our own furnaces, and the slackening up in the demand for two or three weeks will probably cause an accumu-lation sufficient to meet all legitimate requirements without advancing price. The outlook, as regards consumption, is exceedingly flattering, but owners of furnaces have regulated supplies in such a way as to do away with all fears of an Iron famine. Production has kept pace with consumption, and there are reserves which can still be utilized in case of necessity, so that, in the immediate future, at least, changes in prices are not likely to be important in either direction. No. 1 Foundry Iron is offered at rection. No. I Foundry Iron is offered at \$25; No. 2, \$21 @ \$22; Gray Forge, \$20 @ \$22; Mottled, \$19 @ \$20. Choice brands are held at higher prices, but the above may be regarded as a fair average of the markot. Charcoal Iron has sold at \$33.50 @ \$35 for Hot Blast and \$38 @ \$40 for Cold Blast. Scotch Iron moves very slowly and in small. Scotch Iron moves very slowly and in small for Gartsherrie. English Iron is held at \$18 @ \$20, and sales in lots of 500 tons each have been made at some concession from the inside quotation.

Blooms-Are steady at last week's prices, viz.: Charcoal Blooms, \$65 @ \$67.50 per ton of 2464 lbs.; Run-out Anthracite, \$55; Sunken Scrap Blooms, \$50 @ \$52.50 per ton of 2240 lbs.; and Northern Ore Blooms, \$48

Muck Bars .- Buyers are unwilling to meet the advance usually asked, so that no For a good quality \$38.50 @ \$39 at mill is asked, but for 500-ton lots there are no offers at over \$38, so far as we can learn.

Bar Iron.-There is a steady feeling in this department, and although nothing of importance has been done during the past 10 days, buyers find it difficult to place orders at prices current during the earlier part of the month. There can be no doubt that the card rate of 2.4¢ is pretty firmly adhered to by manufacturers, and 2.5¢ is the usual quotation from store. A good many orders have been taken at the mills, and they are have been taken at the lillins, and they are as full as they care to be unless they get their price on all new orders. The outlook is encouraging, and, on the whole, better than it has been for years. Consumption is large enough to keep the mills at work, and for the time being there is nothing to be found from foreign competition, and if feared from foreign competition, and if prices of material and its product can be kept about as they are there is every reason to expect a season of prosperity for all con-cerned. Skelp Iron has been very quiet for some time past, but inquiries for small lots some time past, but inquiries for small lots have come out recently, and a larger de-mand is expected early in the new year. We have not heard of any sales of Skelp, but prices are firm at about 2.4¢.

Structural Iron. -There is more inquiry, and prospects of business at an early date appear to be more favorable. One or two rders have been taken for bridge work. and others of more importance are likely to be closed in course of a week or ten days. Prices are unchanged at 2 6¢ for Angles: 2.0¢ for Beams, and 3.1¢ @ 3.2¢ for Channels and Tees.

Plate and Tank Iron.-The improved demand noted during the past two weeks has led to increased firmness on the part of holders, and prices may be quoted about a tenth higher. Bids, ranging from 2.8# @ 2.9# are out for about 1000 tons ship plate, but up to date we have not heard that conbut up to date we have not heard that con-tracts have been closed. There is more in-quiry for Tank Iron also, and prices are firmer. Boiler Plates are also in active do-mand, and manufacturers are fully employed.

Sheet Iron .- The market is quiet, as is always the case at this season. No sales of any importance have been effected for some

again. Frices are unchanged, Viz.:
Common Sheet, No. 25 to 28.
Common Sheet, No. 15 to 28.
Common Sheet, No. 16 to 22.
Best Refined ¼ f @ ½/c advance on the abBest Bloom Sheets. No. 26 to 28.
Best Bloom Sheets. No. 26 to 25.
Best Bloom Sheets, No. 16 to 27.
Common Red Plates, 3-16 to 16.
Blue Annealed, 3-16 to 16.
Best Bloom Galvanized, discount.
Second quality. discount.
Steal Refits.—The market has been

Steel Rails.—The market has been very Steel Kalls.—The market has aggre-active, and sales (including foreign) aggre-active, and sales (including foreign) aggre-to nearly (0.000 tons. Of this amount gate nearly Co,000 tons. 20,000 tons have been placed at mills in Eastern Pennsylvania; 10,000 tons in St. Louis; the balance is made up by sales of small lots and lots of foreign rails in store and for shipment. The New York, Ontario and Western was a buyer of 10,000 tons, the other lots were chiefly for Texas or for Western roads. Prices realized were from \$58 at mill to \$62.50 @ \$65, delivered at and 2% off for cash. Southern ports. The demand is increasing, and next month's business is expected to be Toe demand is increasing, and next month's business is expected to be it wrought 1708.—Incre has been a raning very large. Prices are steady and not likely off in new orders during the past few weeks, as was to be expected, in view of the close of the year being so near at hand, but mand will prevent a decline. will prevent an advance, and the heavy de-mand will prevent a decline.

Steel Blooms.-The demand has been large, and sales of 20,000 to 25,000 tons have been made within the past ten days. Prices realized (duty paid) are said to be from \$45 to \$46 at tide

Iron Rails.-There is more inquiry, but in American Rails very little actual business has been closed. It is probable that a few thousand tons may be given out within the next ten or fifteen days, but at the present cost of material, the low prices of English Rails are hard to meet. The mills are still employed on old orders, and for certain districts, on account of saving in freights, they will probably have the preference again. There is scarcely any chance, however, in competing for business in the South or South-Sales of several thousand tons of English Rails are reported at \$44 @ \$45 at tide, and small lots of American at \$46 at mill. Manufacturers ask \$45 @ \$46 for heavy, and \$48 @ \$53 for light sections.

Spikes-Are steady at \$2.65 @ \$2.75. Fish Plates and Splice Bars, 2.35¢ @ 2.5¢. Track Bolts, \$3.50 @ \$4.50, according to specifica-

Old Rails.-There is no change to wote in prices, but holders are firm, and for lots to arrive, higher figures are mentioned. There is a good deal of inquiry, and at about \$26.50 for Flange Rails, it is probable that a good deal of business could be done. Holders ask \$27, however, and in the general expec-tation that consumers will soon be forced into the market, they are not disposed to grant concessions. Of late New York seems to have been the most prominent market, but as the heaviest consumers are located in this direction, they are not disposed to send their orders so far unless at some advantage in price. Stocks here are not large, and mostly in strong hands, so that buyers are turning their attention to foreign markets for lots to arrive during spring and summer. There seem to be fair prospects of an early improvement in prices and a very active business during the next 30 days. Flanges are held at \$27, free on cars, and \$28.50 @ Flanges \$29 for Doubles, with sales of small lets at those prices.

Scrap Iron—Is steady and unchanged. Sales of Wrought at \$20 @ \$30, according to quality and point of delivery; Cast, \$20 @ \$21, and Stove Plate, \$16 @ \$17.

#### PITTSBURGH

Office of The Iron Age, 77 Fourth Avenue, | PITISBURGH, PA., Dec. 28, 1880.

Business, excepting in the way of holiday goods, has been rather quiet the past week. volume of business during the year so near a close will compare favorably with that of any former year is generally admitted, but in some branches of business, owing to a sharp competition, prices have been cut so close as to be unremune; ative, and there have been but little money made in competition. The beauth the appeal will fair, other close as to be unremune ative, and there has been but little money made in con-

Pig Iron.-Notwithstanding the close of the year is so near at hand and we are in the midst of the holiday season, when ordinarily there is but little done, we can re port a continued fair degree of activity, and prices are firm, but without quotable change. The demand is largely for future delivery. In regard to the ore question, there is, as noted in our report of last week, a diversity of feeling. There are those who look for cheaper ores, while others do not expect to see prices much cheaper in 1881 than they have been in 1880. Advices from the Lake ore regions report that the leading ore companies there are not disposed to make any concessions whatever, but will insist on present prices, notwithstanding it is claimed that such a course, if adhered to, will stimulate the opening up of new ore fields much nearer Pittsburgh. We repeat former quotations: Bituminous Coal and Coke Smelted Irons from Lake ores, \$22 @ \$23, 4 mos., for Neutral; \$23 @ \$23.50 for cinder-mixture Red-short; \$25 @ \$27 for all-ore ditto, and \$27 @ \$28 for Bussemer. Coke Irons from native ores-\$20 @ \$21.50, 4 mos., for Cold-short, and \$22 @ \$22.50 Eastern Cold-blast, \$38 @ \$40. \$22.50 for Neutral.

Manufactured Iron. - The meeting which took place here last Thursday was not a general meeting of the Western Iron Association, as stated by the daily papers, and its action, therefore, does not signify much, as only a few of the Bar mills were represented. It was agreed by those in attendthe close of the year. Tank Iron is quoted at 2.75¢ @ 2.87½¢: C. No. I, 3.3¢: C. H. No. I, 3.5¢: Flange Iron, 4¼¢@ 5¢: enough compared with the cost of the year. enough compared with the cost of produc-tion; indeed, it is generally claimed that the card should be 2 1/2 in order to give th always the case at this secondary importance have been effected for some days past, but dealers are reducing stocks rapidly, and will probably be heavy buyers early in the new year. Manufacturers are making extensive preparations to meet the demand, and as stocks in first hands are much reduced, the mills will probably be fully employed as soon as they start up again. Prices are unchanged, viz:

| April | Instrumed base before the 1st of April | last-named base last | last-named base before the 1st of April | last-named base last | last-named base last | last-named base last | last-named base last | last-named manufacturer a fair margin for profit, and

Nails.-The Nail meeting of last week, mention of which was briefly made in our last report, has produced a much better feeling among manufacturers. One very important point developed at the meeting was the smallness of the stock, both in the hands of manufacturers and their agents, and another, equally as important, is that there are very few orders booked for next year's delivery. Strong efforts had been making for some time by buyers to get orders placed for delivery next year at the rates ruling prior to the advance of last week, but without success, as manufacturers were impres-sed with the belief that an advance was near at hand, and it is evident that the parties desiring to make the contracts aforesaid were also impressed with the same belief. We continue to quote at \$2.85, 60 days, with an abatement of 10¢ per keg on car-load lots

Wrought Iron. -There has been a falling

about all they can do in working up old orders. No change in card or discounts. We continue to quote the latter at 65% @ 67½%; Boiler Tubes, 40% off. Oil Well Casing and Tubing, 21 ¢ and 70¢ per foot net.

Muck Bars.-We can report sales of Neutral equal to \$38.50 @ \$39, cash, and 4 months; Red-short may be quoted at \$40. There appears to be considerable inquiry.

Steel .- There is nothing new to record in connection with this important interest; there is a continued fair degree of activity for the season, but prices are still being cut for the season, but prices are sun being cut more or less, and for some kinds the margin for profit is small. The probability is that a meeting of manufacturers will be called before long with a view to adjusting prices. Standard brands of Refined Cast Steel are still quoted at 11¢ @ 12¢; do. Machinery, 7¢ @ 7½¢.

Railway Supplies .- No recent sales of Steel Rails reported here, in the absence of which we quote at \$59 @ \$60, cash, at mill. Railway Spikes have been advanced to 234 Railway Spikes have been advanced to 237, 30 days. Splice Bars are still quoted at 23/6, and Track Bolts at 3/4 6 @ 3/26, with source and hexigon nuts. Business in the above goods keeps up remarkably well for

Coke.—Business is still restricted for want of cars. None of the railroads are able to furnish anything like the transportation wanted for this important article. Prices remain unchanged at \$1.50 per ton, delivered free on cars at ovens; \$1.65 @ \$1.75 for small foundry orders.

#### CHAPTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOGGA, Dec. 27, 1880

The weather during the week has been, for the greater part, wet, rough and disagreeable. This has somewhat curtailed the movement of materials, but general trade has been extremely active in lighter wares and goods. Chattanooga and the other Southern centers of business have sold nore goods this week than they ever before disposed of in any week preceding the holi-

Pig Iron.—The lock up in higher grades of metal which resulted from furnaces selling for future delivery last summer, has been so far reduced that dealers can supply their customers—at least in part. No large bills of No. 1 can be delivered, but when consumers can do no better they must con-Business, excepting in the way of holiday goods, has been rather quiet the past week, and our manufacturers generally will be engaged during the next week or two in taking stock and making the regular annual and s-mi-annual settlements. That the volume of business during the year so near a close will compare favorably with that of Forge, \$20 @ \$22; White and Mottled, \$18 @ \$40. ent themselves by getting a few tons at a

ful, though the supply is still fair; other articles in this list are quiet. We quote: Old Rails at \$26 @ \$28; Wrought Scrap, \$20 @ \$24; Cast, \$15 @ \$17; Old Wheels, \$28

Ores.—We quote: 50 % Brown Hematite, per ton, \$2 @ \$2.75; Red Fossil, \$2 @ \$2.25. Nails .- It is the general opinion of dealers that the improvement in Nails will prove genuine and lasting. We advance them to \$3.25 rates, being 15¢ on last quotation, and strong; usual discount on 200 keg lots and

for cash Manufactured Iron.-The list is quiet, and without quotable change. We quote: Bar at \$2.35 rates; Railroad Spikes, \$3; Track Bolts, \$4; Trestle Bolts, \$4.50; Fish Plate, \$2.50.

Coal .- There is much discussion of the Coal situation in the South this winter, and if it lead to real improvement in the future, the sufferings, in pocket and otherwise, of the people will not be without compensation. A full supply of cars and engines would at once bring prices to a reasonable standard. Atlanta is paying \$7 @ \$9 per ton for Lump. Chattanooga about \$6, delivered.

ace; Foundry, 10¢ @ 12¢ per bushel. Steel and Iron Rails .- We quote : Steel Bars at \$62.50 for American makes, \$60 for foreign. Iron, \$48 @ \$50; Small T s firm at \$55.

Lead.—We quote : Pig Lead, 41/2 @ 5 .

Coke.-Furnace Coke, \$3 per ton at fur-

mi un sh an Mi

los ar las

No. aa No

2.85 per

Steel .- Plow Slabs, 3 in. and under, \$4.70; Black Diamond, ordinary sizes, 13¢.

CINCINNATI. DECEMBER 27.—Pig Iron.—The business of the past week has been confined to the closing of contracts previously entered upon for deliveries through the coming two or three months, and in filling orders for The sales for immediate consumption. future deliveries have been at some concession in prices on quotations last week. The increased demand on the part of consumers is fully met by the largely increased produc-tion in the West and South. The outlook on the future is for a very large increase of business, but with little expectation of much advance in prices. The prominent sales within the past ten days have been 1000 to 1500 tons "Lowmoor," Va., 1000 to 1500 tons "Oakdale," Tenn., and others, making it all some 5000 or 5000 tons P. u. t. making in all some 5000 or 6000 tons p. u. t. Other sales have been made covering 6000 to 10,000 tons in smaller lots, at about the following quotations. The kinds include the makes of Hanging Rock, Hocking Val-Virginia, West Virginia, Tennessee, ley, Virginia, West V Alabama and Georgia: No. 1 Hanging Rock Charcoal, Best

|   | Foundam 100s Cantoon, 200                    | \$26.50 @ : | 27.00 |
|---|--|-------------|-------|
|   | No. 1 Hanging Rock Charcoal, Good            |             |       |
|   | Foundry                                      | 25.50 @ 1   | 6.00  |
|   | No. 2 Hanging Rock Charcoal, Good            | -3.3        |       |
|   | No. 2 Hanging Mock Charcon, Good             | 25.00 @     |       |
| ١ | Foundry<br>No. 2 Hanging Rock Charcoal, Fair | 23100       |       |
| 1 | No. 2 Hanging Rock Charcoai, Fair            | 24.00 @     |       |
| ١ | Foundry Proced Proced                        | 24.00       |       |
| 1 | No. 2 Hanging Rock Charcoal, Poor            | 23.50 @     |       |
| J | Foundry                                      | 23.50 @     |       |
| 1 | No. 1 Coke, Best Foundry                     | 22.00 @ 8   | 03.0  |
| 4 | No. 1 Coke, Good Foundry                     | 22.50 @     | 3.3.  |
| 1 | No. s Coke, Good Foundry                     | 22.00 @ 2   | 2.00  |
| 1 | No. z Stonecoal Foundry                      | 22.00 @ #   | 200   |
| 1 | No. 2 Stonecoal Foundry                      | 21,00 @ 2   | × 60  |
| 1 | No. 1 Stonecoal, Softener                    | 21.00 W S   | 2.50  |
| 1 | No. 2 Stonecoal, Softener                    | 20,00 @ 2   | 0.50  |
| 1 | No. 2 Stonecoal, Softener                    | 19.50 @ 2   | 4.00  |
| 1 | Nos. z and 2 Charcoal Mill                   | 22.00 @ 2   | 4.00  |
|   |  |             |       |

BESSEMER.

MILL ORES.

BOSTON.

orking up at 65% @ Oil Well per foot

30, 1880,

rt sales of h, and 4 ted at \$40. inquiry. to record t interest; activity being cut bability bability is rs will be adjusting fined Cont fined Cast 12¢; do.

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laust con-Ga., is agement addition ed presled, \$18

renew other \$20 natite. \$2.25.

dealprove and \$3; Fish

ur-

and

# CLEVELAND. DECEMBER 27.—There is a good demand for ores for immediate and winter consump-tion, balances unsold being very small, and dealers feel more like holding on than self-

dealers feel more like holding on than selling, much less making any concession to effect sales. Consumers are inquiring around regarding prices for next season's delivery, while some steel works have already contracted for part of their ores quietly. Miners of Bessemer ores are still firm in the belief that the steel works can afford to pay as much for their ore for season of 1881 as

belief that the steel works can afford to pay as much for their ore for season of 1881 as contracts netted in 1880. As to prices on ores suitable for other purposes than steel, the price has not nor cannot be fixed as yet; dealers will have to wait until later and fix price on a basis of what the outlook will be on Foundry and Mill Iron. Quotations remain unchanged, except that the prices are firmer. 

figures:

Ref. Bar Iron, 1 to 6 by 1/2 to 2. The 2/2 state of 2/4 stat 

# Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

Beston.

December 25.—The iron market appears to be gaining strength even in the midst of the usual lull which occurs at the stock-taking period. Most buyers are cautious about making new contracts for Pig Iron, but there is very little pressure to sell on the part of holders. Present indications point to a strong market, with values a shade higher after the turn of the year. We quote American Pig Iron at \$25 @ \$26 for No. 1 X: \$21 @ \$22.50 for No. 2 X, and \$20 @ \$22 for Gray Forge. These prices are I. o. b. at the port of shipment. Small spot lots will command \$2 per ton higher. Foreign Pig is quiet and unchanged, and we quote Eglinton at \$21.50 @ \$22; Gartness and Langloan at \$24 @ \$25; Middlesborough at \$18 for No. 3, and \$20 @ \$1 for American, and \$27 @ \$20 for foreign. Manufactured Iron is firmer, and orders would be refused to day at figures which would have been readily accepted a fortnight ago. We quote Refined Bars at \$2.25 but one mill has refused to take any orders at less than 2½6. Norway and Swedish are unchanged at \$4.15 for Bars and \$5.15 for Shapes. Nails are more firmly heid. The present quotation to the trade is \$2.90 per keg for Iol. to 6od. Copper is quiet but very firm at 196 @ 19½6 for Lake and 18½6 for Baltimore. A moderate jobbing trade prevails at 19½7 for Lake and 18½6 for Baltimore. A moderate jobbing trade prevails at 19½7 for Lake and 18½6 for Baltimore. We quote store lake and 18½6 for Baltimore. We quote store lots at 4½6 for beston, 14 figures. See for for ound lots, delivered in Boston, and the market is dull and weak at that figure. We quote a figure For the wall of the property o

was not unexpected, except in so far as it stopped short of a greater reduction. The stopped short of a greater reduction. The otherwise might be. There are some persons, the large sales of seconds in New York last summer.

BAITIMORE

R. C. HOFFMAN & Co., Iron and Commission of the large sales of seconds in New York last side of the stopped shows an omaterial change of the state of 1851 will prove a parallel to the state of 1851 will prove a parallel better than proceed. It is stated, with what amount of truth I don't know, that the general public hold Scotch and Cleveland warrants to the enormous extent of 570,000 tons of pig iron. If that be the case, there is a very small balance in the hands of the for the wisdom of the public or of the trade. It cannot be altogether good that so large a tonnage of iron should be subject to the caprices and necessities of persons who must, of course, be but ill informed as to the nature and risks of their investments, and under certain readily conceived conditions the matter might be attended with alarming, the even if not serious, results. A sudden panic might bring the bulk of this astounding tonnage upon the market like an avalanche, and might diserganise the whole area of the iron trade throughout the world. Prices would naturally be abnormally depressed, and with so strong a desire to sell buyers would not, possibly, be forthcoming, unless in the shape of speculators in the other direction. Happily the contingency is exceedingly remote, and it is certain that there is so much unemployed capital in the country that warrants will continue to be regarded as being good investments. Whether the production will be lessened, or otherwise, I cannot say, but it appears protty certain that if it is continued, it may be some time before we again encounter high prices. The prospects of trade, nevertheless, are regarded as being hopeful and good, hence the other contingency is not impossible, and by some persons is regarded as being among the probabilities of the early part of next year.

| tlated at less money :                  | er custafa | could b | e nego- |
|---|------------|---------|---------|
| Longdolo                                | No. 1.     | No. 2.  | No. 3.  |
| Lonsdale. Workington. Lowther. Moss Ray | 66/        | 65,     | 64/     |
| Moss Bay                                | 66/        | 63/     | 64/ a   |
| Maryport                                | 66/        | 65/     | 64/     |
| Askham                                  | 66/        | 65/     | 64/ n   |
| Bessemer blooms are<br>f. o. b.         | £6 to £6.  | 5/ per  |         |

| 6-     | ber only in  | ding ite         | ms of            | export             | for No            | oven           |
|--------|--|------------------|------------------|--------------------|-------------------|----------------|
|        |  | Que              | antities         |                    | -Value            |                |
| I      | Firearms, N<br>Brass, mfrs.                            | OF.              |                  | 100                | 879.              | 188o.<br>35,84 |
| 118    | not being or<br>nance, cwt<br>Carriages—<br>Railway ca | 8. 7,93          | 4 5.             | 807 30             |                   | 24.830         |
| n<br>s | Dag'ra N   | or               | 3                |                    |                   |                |
| t      | R'way truck<br>wagons, &c.<br>number                   |                  |                  |                    | 390               | 6,402          |
|        | Copper House   | 1,560,600        | x,475,7          | 52 6,6<br>84 596,4 | 079 40<br>442 650 | 6,577          |
| 1      | Copper, wro't  | ,                | 33.13            | 31 82,9            |                   | 0,420          |
| 1      | met.—She'th  |                  | 25,28            | 78,2               | 30 62             | 1.725          |
| I      | ing, cwts<br>Idw. and cut.<br>ron & steel—             | 25,633           | 33,66            | 76,30<br>254,6     |                   | 357            |
|        | Pig, tons. Bar, angle,                                 | 116,898          | 101,68           | 7 309,22           |                   |                |
|        | Wire, except   | 34,987           | 27.315<br>53.032 | 223,95             | 9 187,<br>4 360,  | 180<br>836     |
|        | Hoons, sheets<br>and boiler<br>and armor               | 4,132            | 5.141            | 49,898             | 66,1              | 1              |
|        | Pin plts, tons   | 22,028<br>19,623 | 27,017<br>19,270 | 235,791<br>380,943 | 305,8             | 77 (           |
| (      | tons   | 13,156           | 25.562           | 255,844            | 366,66            | 10             |
|        | tons   | 51,927           | 4,421            | 1837472            | 17,67             | 5 6            |
|        | & icon tons  | 3,628            | 4,255            | 78,789             | 88,44             | 4 b.           |
| In W   | ch'y & mill-<br>ork—Steam                              | 2,727            | 3.359            | 57,258<br>47,261   | 61,63.<br>57,03   | th th          |
| th     | er descrip-  | ****             | ****             | 227,482            | 276,236           | va             |
|        | e and pltd.<br>gilt wares.                             | ****             | ****             | 430,025            | 707,248           | Th             |
| 1.     | wire and   |                  |                  | Regall             | 22 6              | ax             |

| Alkali, ovts. Hardware and cullery. £ Iron—Fig. tons. Bar, angle, rod. &c. tons. Railroad, all, tons. Hoops, sheets, plates, &c. tons. Cast or wro galt, tons. Cast or wro galt, tons. Steel, unwrought, tons. Lead, unwrought, tons. Steen engines, tons. The machinery. &c. £ Thum rought, tons. The machinery. &c. £ Thum rought, tons. Thum rought, tons. Steel rails, tons.   | Article.                      |
|--|-------------------------------|
| 237,980<br>39,451<br>14,700<br>1,603<br>3,4074<br>23,584<br>23,584<br>23,584<br>23,584<br>23,584<br>23,584<br>24,584<br>24,584<br>24,883<br>24,883<br>24,883<br>24,883   | Month of<br>Nov'ber,<br>1885. |
| 314,700<br>28,584<br>67,474<br>8,754<br>9,837<br>2,837<br>2,127<br>2,127<br>2,127<br>2,127<br>48,072<br>48,073<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641<br>1,641 | Month of<br>Nov.ber.          |
| 245.766<br>47.076<br>14.705<br>14.705<br>14.705<br>14.705<br>14.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>24.706<br>2   | Month of<br>October,<br>1880. |

The general direction of our trade in hard-ware and cutlery during the month is shown by the appended particulars.

|                     | articula                   | rs:                        | is shown                   |
|---------------------|----------------------------|----------------------------|----------------------------|
| To Novem            | DOT 1878.                  | AND CUTL                   |                            |
| Holland             | £11,970<br>20,340<br>6,512 | 13,012                     | £7,677<br>16,138           |
| Spain and Canaries. | 7,067                      | 6,96a<br>34,827<br>7,136   | 7,088<br>27,794<br>7,718   |
| Islands             | 6,546                      | 4,993                      | 39,251                     |
| Argentine Republic. | 6,697                      | 5,868                      | 7,481<br>21,315<br>9,180   |
| in S. Africa        | 9,350                      | 7,024                      | 13,(73                     |
| Other countries     | 23,659<br>51,330<br>81,392 | 23,735<br>24,999<br>68,576 | 28,c78<br>27,546<br>38,888 |
| Total£              | 298,196                    | £254,612                   | £312,357                   |

| chairs, cut nails, wire, nuts, boits and rivest plane sold more from a possible services of the services of

charge of 5/ admission the first day.

A FEW JOTHERS

must this week take the place of my usual more extended notes on Birmingham, Sheffield, &c. Discussion on fog and smoke is bringing American stoves and antifacte to the fore. Large American inquiries for bariron are said to be afloat here, in Belgium, and in Germany. A marked improvement is recorded in tin plates, which are now firm, cokes, 16/@ 16/6, and charcoals, 19/@ 19/6 per box I. C. at Liverpool. Steel rails steady. 26 @ £6. 10/ Iron rails, £5. 6/. Welsh bars, £5. 5/. & £5- 7/6. Old rails nominal and quiet at 70/@ 75/1.

o. b. Heavy wrought scrap iron, 62/6 @ £6./ per ton. Steel blooms, 7 by 7 inches and upwards, £5. 5/. & £5. Ic/ per ton f. v. b. Metols quiet and rather inclined to weakness. "Sanitary associations" for the mutual inspection of dwellings and further ance of sanitation are being formed in various towns and cities, Edinburgh having one, two years old, and well-established. The late Mr. Mark Firth is said to have left a very large fortune, variously rumored at from £250,000 to £450,000 sterling. Vari-

22,604
a very large fortune, variously rumored at from £250,000 to £450,000 sterling. Various hardwares, curry combs, buckles, &c., and John Willenhall, Wolverhampton and Brmingham. "A Merry Christmas and Hippy New Year" to all.

#### FOREIGN.

PARIS. Dec. 12, 1880.—Metals.—The weather has been mild, too mild even, and there is some disappointment in this respect to business. With the exception of Copper, which has been fully search to sure the consumer to the consumer when the consumer to the consumer to the consumer to the consumer to the consumer will soon have to pay a consideration to the consumer will soon have to pay a consideration to the consumer will soon have to pay a consideration to the consumer will soon have to pay a consideration to the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon have to pay a consideration the consumer will soon ha

BELGIET. (Revue Universelle.) BRUSSELS, Dec. 12, 1880, — Iron. - There is said a considerable amount of hesitation in Iron circles

country. The centracts that had been upon are not make the state of th in this country. The centracts that had been counted upon are not mane, and manifer the romains weak at 11.50 france the 100 klos. Fig. Iron, whatever may be advanced by some parties, has been unable to successfully resist the downward tendency. In Sheet Iron absolutely nothing transpires. Some rolling mills had nade a desperate attempt to get up a combination and thus artifectally screw up the price, but in this they have miserably failed. It is most difficult to explain this unexpected weakening and breakdown in Belgium, while in France and England the aspect is quite the reverse. Perhaps this reaction is merely casual and temporary, and may in a mensure be due to the proximity of the holidays. We are, therefore, in hopes that we shall soon be permitted to record a favorable change, and that everything will still be right for the coming spring trade. Belgian railway material makers have drawn up a petition to Congress to abolish the import duty on puddle Pig Iron. With respect to Metals we merely have to mention that Spelter and Zinc, which had remained tolerably steady so far in Belgium, have at length also declined very much in this country, the export demand being nominally light. Coal.—This fuel maintains its liveliness; shipments are very large, betokening great activity, also in general industry in Belgium.

Hamburg, Dec. 10, 1880.—Bron.—We are informed from Dorkmund that there has been but little change during the week. The demand for Steel Rails and railroad material generally remains as satisfactory as before. The same thing may be said of drawn Wire. In Merchant Iron and Sheets also a better feeling begins to assert itself by degrees. Works in this branch are, therefore, less ready to make concessions. Strange to say, puddle Pig Iron exhibits a duller tendency, while Besener Pig, in consequence of increasing orders for Bessemer Steel Rails, is improving in value a little. As mentioned last week, Dorkmund Foundry Fig has been raised 2 marks per ton, notwithstanding the fact that machine shops, as well as foundries, complain of a lack of orders. Prices have hardly undergone a change since our last. O. J. Coaf the mild weather has exercised some influence. Should it continue a little longer there will soon be a dull market. Coal for domestic use is in less request, and many works in the vicinity, using alternately water and steam power, now use the former as long as the mild weather permits. Small vessels are scarce on the Rhine, but we shall soon probably have large ones to load Coal for Holland. In the Mossile and Sarre region the Iron market is more active and the tendency in Coal remains good. In Upper Silesia the Pig Iron market is tolerably farm. Blast furnaces maintain their figure of 54 marks per ton, but the rolling mills decline subscribing to it, for at the price of 100 marks for Merchant Iron they work without profit. In spite of the brink demand for Coal the advance so far has but been insignificant. Metals.—Lead remains firm and unaltered. We quote: English Pig, 17 @ 17,50; ditto Sheet, 17,50 @ 18; German Pig, 13,30 @ 35,50; and Sheet Zinc, 28,50; and Belgian, 23,10. Tin.—This metal has gone on improving. We quote: Sanca and Australian, 93 @ 100 marks the 50 kilos; English Common, 100 @ 102; and ditte Refined, 102 @ 104; P. S.—News still reaches us from Upper Silesia that the demand for Merchant Iron

#### HOLLAND.

HOLLAND.

(Kook & Vilerboom.)

EXPORT OF TIN FROM HOLLAND.

|                 | Por septemoor. |                | 2 or mile monens. |                |                |                |
|-----------------|----------------|----------------|-------------------|----------------|----------------|----------------|
| To              | 1880.<br>T'ns. | 1879.<br>T'ns. | 1878.<br>T'ns.    | 1880.<br>T'ns. | 1879.<br>T'ns. | 1878.<br>Tons. |
| Germany         | 324            | 275            | 194               | 2554           | 2327           | 9591           |
| Mingland        | 37             | ×              |                   | 1082           | 447            | 131            |
| Belgium         | 193            | 171            | 94                | 2008           | 1074           | 1000           |
| France          | 79             | 85             | 15                | 320            | 379            | 301            |
| Hamburg         | 58             | 58             | 40                | 589            | 311            | 484            |
| The U. States   |                | 82             | 0.0               | 368            | 348            | 10             |
| Oth'r countries | 58             | 6x             | 89                | 550            | 223            | 499            |
| Total           | 679            | 673            | 43×               | 7671           | 5019           | 4965           |
|                 |                | -              |                   |                |                |                |

AUSTRIA.

(Austrian Trade Journal.)

Virenal Dec. 13, 1830.—Iron.—The trade in Iron throughout remains a dragging one, activity therein not coming up to expectations. The reduction of Merchant Iron makers' price lists has been unable to stimulate the demand. The fact is that our rolling mills have hesitated too long with their concessions. Now the demand has fallen off, both in the provinces and it neighboring countries, like, for example, the Danublan principalities, Italy, &c. Foreign producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian producers have supplied them, while ours were inflexible in their demands. But even now Austrian pr

#### CHILL. (Ferrocarril.)

CHILL.

(Ferrocarril.)

VALPARAISO. Oct. 15, 1830.—Copper.—An active business might have been done, but many buyers were only inclined to operate upon the basis of sterling money, while holders could only be brought to treat upon this plan with difficulty. Sales, 23,000 quintals at \$19 @ \$1.95, with a6%d. @ 38%d. exchange. In Regulus nothing but a small to changed hands on future delivery; smelters' offers are very low. We quote 50 % \$3.40 nominally. Nothing has transpired in Ore, 25 being worth nominally \$3.25 per quintal. Copper in bars closes at \$19,50, nominally, with 60/ steam freight. Nitrate.—Since the duty bill passed, low prices have prevailed and Taltal sold as low as \$3.05 @ \$3.40, but this leaves the producers still a good profit, for Taltal Nitrate will be duty free till Sept. 1t, 1881. Sales, 200,000 quintals at \$3.05 @ \$4.40, with 32d. @ 30%d. exchange, 95 to 95 %. Presight.—Nitrate to Hampton Roads, 42/6 to 42/. Coad.—Three vessels arrived; sales 1700 tons at \$10.75 @ \$11, and 1500 at \$21.7/ here. Vessels in harbor, 916 tons British, and 14,650 other foreign. Exchange.—There has been extreme fregularity, so much so that the banks have published no official rates. We quote on London, 60 days' sight, per dollar, 29/dd. @ 29/dd., and 90 days, 20/5d. @ 20d. We hear at the close that commercial bills have just sold as high as 30/5d.

EAST INDIES.

EAST INDIES.

#### Notes on Steam Traps.

The use of a steam trap of some kind is absolutely essential to the steam fitter who is dependent upon an apparatus of this kind to separate the steam from the water. In steam-boiler and steam-engine work the part which performs this office receives the much more correct name of separator, its name indicating exactly the office which it performs. Though the so-called steam trap does actually trap the steam—that is, pre-vent its escape from the pipe—yet its chief use is to remove the water from the pipe and use is to remove the water from the pipe and leave the steam behind, or essentially one of separation. This is often accomplished without the use of any trap in the true sense of the word. Mr. W. H. Baldwin, an old steam fitter, writing to the American Machinist upon the subject of steam traps, divides them into three classes. The oldest of these is the expansion trap. It embraces two kinds—one composed of two metals of different co-efficients of expansion, and the other depending on the expansion of a and the other depending on the expansion of a liquid, as alcohol or mercury, inclosed within a metal case.

Fig. 5 is a section of a simple form of expansion trap to show the action of two metals, iron and brass being mostly in use, and the expansion of the brass being a little over one-half more than that of iron for the same rise in temperature. A is a piece of iron gas pipe closed at one end, with a hole C drilled through it. On the other end is a common T, with a plug screwed into it, as shown. D is a brass rod, with a taper point the hole must be a little smaller than onecommon T, with a plug screwed into it, as
shown. D is a brass rod, with a taper point
on one end, made to form a valve with the
hole C with a long screw on the other end
to fit through a threaded hole in the plug.
F is a jam nut to fasten the rod when adjusted. The side of the T (B) is the inlet,
and the elbow G the outlet. To adjust the

The pot trap operates thus: The condensed water from the coils, &c., runs in at the pipe F, and fills the outer pot A with water, until it floats the inner pot B against the stem C, closing the valve formed by the spike and the tube, thus closing the outlet to the table are access. and the tube, thus closing the outlet to the tank or sewer. The water, which still continues to flow into the outside pot, rises and overflows into the inside pot. Then the latter sinks and opens the valve which the spike forms with the hollow stem, allowing all the water in the inner pot to be forced up through the stem and out by the pressure of the steam in the upper part of the pot, acting on the surface of the water. Thus, when the inner pot becomes buoyant again by the the inner pot becomes buoyant again by the discharge of its water, it closes the valve, and leaves it so, until the increase of the condensed water again overflows it. This action is intermittent, the frequency of it depending on the amount of work to be done. There is one point in the construction of

this trap on which depends its working, namely: The area in square inches of the hole in the end of the hollow stem, C, must be no larger than the quotient obtained by dividing the weight in pounds of the inner pot, when submerged, by the maximum pressure, in pounds per square inch, of the steam to be carried.

Thus, if the inner pot weighs 12½ pounds under water, and the greater pressure of steam is to be 100 pounds per square inch, the hole must be a little smaller than one-

lief that it is all steam, and that possibly he the pipe is opened, the pressure in the globe

has low water.

A is the outside case with a loose cover; B

or hot water which is capable of giving off steam, is discharged through the cock C under the float B (which we will suppose to be down), the expansion of the steam im-mediately raises it and closes the cock until the steam under the float condenses, when it sinks to admit just enough hot water to create steam enough to lift it again and close the cock, and thus the action goes on.

When the temperature of the water in the pipes near the trap is below 212 degrees, it any other temperature incidental to the pressure of steam within the pipe to be drained, the escaping water, as it passes the cock C will give off steam enough to raise the float and prevent the efflux of the water until it reaches 212 degrees or lower. Of course, this water may be held in the pipes, or coils, but not at a lower temperature than 212 de

When water at 212 degrees or lower is received into an open tank—i.e., a tank without pressure, with an opening to the atmosphere—there will be little or no loss of heat, as the water can be pumped back into

becoming practically the same as in the boiler. Again, close the valve in the steam the invested open float; C the common plug cock, operated by the float.

The operation is as follows: When steam, The operation is as follows: When steam, I the steam already in the upper globe condenses, the water from the lower one will again rise into the upper one. There should be a check valve in the pipe leading from the upper side of the upper globe to below the water line in the boiler to prevent any water from returning by that pipe. The water which has thus risen will again be leveled down to the water line of the boiler upon the opening of the steam

valve.

This principle was understood and used, substantially as explained, before the auto-matic traps were introduced, but, as it was flows out rapidly, and, passing under the edge of the float (which will be down in the position shown by the dotted lines), goes through the outlet, but should the temperature of the water be 225 or 250 degrees, or did not use them. Thus the only to be overcome in this class of traps is to have an automatic contrivance for opening the steam valve which can be relied upon.

Fig. 1 shows section of one of these traps,
A being the globe, B the automatically
moved steam valve, C a strong cast-iron
float, with a counterpoise, D, to get the required balance, and E an auxiliary, which
consists of a ball. E' and a track, g', which consists of a ball, E', and a track, a', which are connected in such a manner with the float spindle that, when the float rises by the increase of water in the globe, the track a'passes the horizontal position, the ball E'runs to the opposite end, and the force of the blow on the hook at the end of the track pulls the valve open and admits the steam. The latter presses the water into the boiler, and leaving the globe empty, the float sinks, allowing the ball to run back and close the valve by striking the other hook. This auxiliary is necessary for the same reason that a direct-acting reciprocating pump

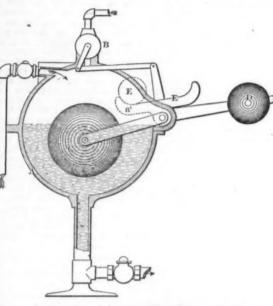


Fig. 1.—Section of an Automatic Direct Return Steam Trap.

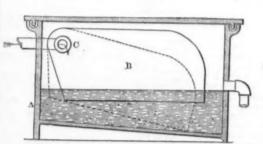


Fig. 4.—Section of Open Float Trap.

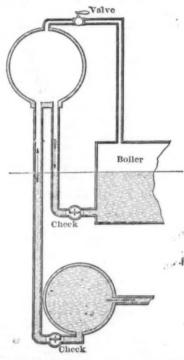


Fig. 2.—Diagram Illustrating the Action of the Automatic Direct Return Steam Trap

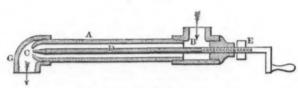


Fig. 5.-Section of an Expansion Trap.

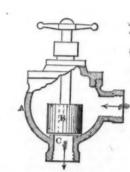


Fig. 3.—Section of the Common Pot Trap,

so called.

Fig. 6.—Section of Expanding Liquid Trap.

NOTES ON STEAM TRAPS.

temperature increases again, by the admission of steam the rod and the pipe expand, but as the rod expands more than the pipe, the hole is closed, and the pipe is again roady to receive water and hold back steam.

Fig. 6 shows a section of one of the expanding liquid traps. In general appearance it is like an angle valve, but much larger. A is the valve body; B, a hollow disk, with an expanding bottom, like an oil can, filled with any liquid that will not freeze, and that expands more rapidly, or to a greater degree, for a given amount of heat, than the metal which incluses it. C is a valve seat. The following is the constitution. a valve seat. The following is the operation of this trap: When the live steam is blowing through, the disk is closed down, the same as in a valve, until the steam has just stopped; the heat of the steam, in the meantime, having expanded the liquid and swelled the sides and bottom of the hollow disk, thus allowing it to contract away from the valve seat when the temperature falls, by having the condensed water collect around it, which water in turn passes off, and is followed by steam, which again swells it, thus closing it.

The "pot trap" belongs to the second class, and is much used by those who understand it. Fig 3 shows section of the common form of this trap, embracing all the necessary points of construction. A is a cast-iron pot, sufficiently strong to withstand him. Singarors. Nov. 15, 1880.—Tin.—The price has tanged from \$1.50. up to \$3.8 and hork to \$27.50. which was our closing quotation yesterday. To day, buyers have come forward at \$2.6, and the market closes firm; about 37% tons have been bought, chiefly, we believe, for the United States. For the first half of this month, 300 tons are reported shipped in that direction. Freights tend upward. The Oneida has taken the berth for New York at 35/ for dead weight. The ships now on the berth for New York at the Freeman Clark, Visurgis and Oneida. The Hiram Emery is still loading for Eston. Exchange has varied little from our present quotation of \$2.0% for 6 months' private bills. Shipments from the Straits settlements to the United States during the first in months, 12,317 picule against 93.855 piculs in 1879, 50,487 in 1873, and 3171.

der of an engine, into a tank or sewer at a least three very good modifications of very much higher level than that which it drains, and it will keep them as dry as if ing all that can be done by a steam pump discharged downward. It is the only trap opening to the atmosphere which will do this boiler. and therefore deserves to be more widely

of which is not generally understood, namely, the trap is capable of taking recognition, so to speak, of temperature as well as quantity, and will discharge its water down to atmospheric temperature and pressure, no matter what may be the temperature of the water in the coils due to high pressure.

To make this clear, it is necessary to ex-plain that water which falls to the bottom side of a nearly horizontal pipe with 50 pounds pressure of steam in it, has not fallen to a temperature of 212° F., as is very generally supposed, but has simply parted with the latent heat of the steam incidental to the pressure, leaving the temperature of the water (when the flow and pressure of the steam are maintained) a very little less than the temperature of the steam. This water will again give off some of its sensible heat, to be again made latent, to make steam of a lower pressure when allowed to expand. But it must not be understood that all the water flies into steam. It does not, the quantity of water converted into steam heng represented by the ratio the latent heat of the steam at the different pressures bears to the sum of the latent heat and the sensiole heat of steam.

Thus, when water is drawn directly from a high pressure coil into the receiver of a trap, and is discharged against the atmosphere grees, it is attended with considerable loss of heat. This can be seen in the blowing of a gauge cock, for, though the water is solid and dense in the boiler when it is drawn, some of it flies into steam and makes a cloud which often deludes the novice into the be-

trap the brass rod is advanced into the hole C until the live steam is shut off.

The operation is in this wise: When the condensed water fills the pipe A it cools both the pipe and brass rod, but as the brass

Of this trap the points of excellence are : and therefore deserves to be more widely understood by the profession.

There are one or two modifications of this trap, but they differ only in the arrange ment, being convenient to clean, &c. There is another open float trap, Fig. 4, which contains a special point of merit, the value of which is not generally understood, namely, that can be utilized in the warming of the building, and, unlike a pump, it has no loss of heat from an exhaust. It can be put on a direct-return gravity circulation that has been botched to a certain extent only, and will make it work; and it can be used as a boiler feeder, using the minimum of energy, which is manifest only in radiation from its outside. The latter should not be covered with non-conducting material, with a view to save heat, for on its cooling surface de-

pends its power.

The principle involved in this class of traps is simple indeed, and I will try to explain it with the use of the diagram, Fig. 2.

It is generally known to users of steam and others, that, if a tight, hollow globe, or tank, is filled with steam, so as to expel the air, and the steam allowed to conde (which it will do in a short time, by and the steam allowed to condense transmission of its heat to the surrounding atmosphere), there will be a partial vacuum formed in the globe or tank. Now, if there is a pipe from this globe connected with the bottom of another globe containing water, the water will rise into the upper one when there is a pressure in the pipe, which comes to the lower one from any source of supply (the condensed water from the heating ap-paratus, for instance), and this pressure need not be above that of the atmosphere. Now, if a steam pipe from a boiler, with a valve in it, connects with the upper part of the upper globe, and a pipe from the lower part of the upper globe connects with the boiler below the water line, the water in the upper globe will level into the boiler when the valve in

A class of traps which has come into use | without a fly-wheel requires help at the end

#### INDUSTRIAL ITEMS.

VERMONT.

The Jones & Lamson Machine Company, of Windsor, are increasing their facilities and working force to a greater degree than at any time during their successful business career of over ten years. The past season they have added new boilers and new machinery. Their manufactures now include, aside from their main specialties, cotton machinery—an order for 400 looms having re-cently been filled for Joseph Griswold, of Turner's Falls, Mass.

The East Middlebury Forge is now running its full complement of three fires.

MASSACHUSETTS.

The old tack factory property on South Church street, Pittsfield, occupied formerly by George S. Willis, Jr., and now owned by the Pittsfield National Bank, is to be The large locomotive works of Boston have

orders ahead until next July.

The Lowell Machine Shop has recently shipped to Frederick Probst & Co., New York, a quantity of machinery for Guadalajara, Mexico. Included in the order was one Foos & Peavy card.

NEW YORK.

At the entertainment given at Sydney, New South Wales, to the Duke of Manchester, a 60-jet chandelier, manufactured by Mitchell, Vance & Co., of New York, was unveiled. The chandelier is one of the largest of its kind in the world, and is of very choic design and first-class workman-ship. Its shape is that of a double pyramid.

ship. Its shape is that of a double pyramid. It is composed of cut polished glass with silver mountings, exquisitely wrought.

The Gere Iron and Mining Company, through their president, W. H. H. Gere, inform us that their Port Leyden Furnace. is making 170 tons per week on ore averag-ing 47 per cent., using 110 bushels of coal to one ton of pig. Their furnace is 10 by 50 feet. They are putting their other stack in

repair.
The Bartholomay Brewing Company, of

UNION I AMERIC. FRANCE Anti-Wind WESTER AMERICA H. M. M

Hai

E. & G. B MALLOF

Barg Low e Japanned

Horse, Works at \ W. CARPEN

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## The Lester Saw

Is the most perfect one in use, and embraces a Scroll Saw, Circular Saw, Drilling attachment with drills, Turning Lathe and tools, solid Emery Wheel, Patent Dust Blower, Patent Saw Clamps. Tilting Table, Wrench, Screw Driver, Designs, extra Saw Blades, &c. It has a black Japan finsh with red and gold stripes and nickelplated Table. List price, complete, \$10.

# **Rogers Saw**

Comprises Scroll Saw, Drilling attachmen with drill points, Dust Blower, Tilting Ta ble, Patent Clamps, Wrench, extra Sav Blades, Designs, &c. Finish same as Les tor Saw. Price, \$3.50.

#### Cricket Saw.

This Saw has the same general appearance as the Rogers Saw, but is lighter and has no Drilliar attachment or Dust Blower. Finish same as the other Saws. Price, \$2. It is by far the best \$2 Saw in the market. All our Saws are made of iron with steel working parts. No charge is made for boxing.

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Established in 1839.

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JUNE 26, 1866, MARCH 23, 1869, REISSUED 1870.

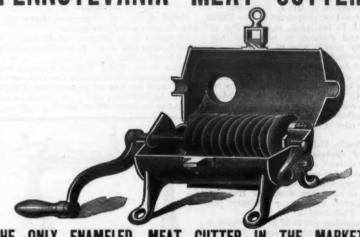
NOVEMBER 10, 1863, FEBRUARY 23, 1864, REISSUED JUNE 1, 1869, IMPROVED AUG. 1, 1877.

The back thrust when in use borne by the SHANK instead of the Hand's None genuine unless stamped "L. COES & CO."

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THE ONLY ENAMELED MEAT CUTTER IN THE MARKET.

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ESTABLISHED 1834.

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BRONZE DOOR FURNITURE, &c.

Gold Bronze Trimmings in NEW DESIGNS. No extra charge for our NEW IMPERIAL FINISH.

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# Superior to any in market.

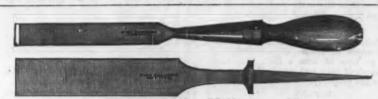
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BUCK BROTHERS, Millbury, Mass.

The most complete assortment in the U.S. of

Shank, Socket Firmer and Socket Framing Chisels,

PLANE IRONS.

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by un-principled persons, who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark, also "Riverlin Works."

RIPLEY MANUFACTURING CO., Unionville, Conn., U. S. A.



BEST PORCELAIN-LINED LEMON SQUEEZERS Common Sense" Mouse Traps.

HAND-MADE ROSEWOOD FAUCETS.

Housefurnishing Hardware.

The Pocasset Iron Company have made large additions to their works and contemplate doing still more in the spring.

After a suspension of some two months, the Dover Iron Works are again in full blast. The damages of the late explosion have been fully repaired.

#### PENNSYLVANIA.

On the 20th inst., the Keystone Wringer Company of F. F. Adams & Co., at Erie, was destroyed by fire. The conflagration was rapid and thorough. The safe in the office was saved. Two firemen were killed. The arrangements for the protection of the building were good, but as the water had been cut off they could not be used. The works will be immediately rebuilt. The Lovell Washer Company, whose goods were manufactured largely at the Adams factory, have, we understand, made arrangments which will enable them to continue filling orders without difficulty.

which will enable them to continue filling orders without difficulty.

The Crucible Works, formerly carried on by Wile, Seidel & Co., at Broad and Callow-hill streets, Philadelphia, will be put in immediate operation by Mr. F. B. Seidel.

Mr. C. Hennsler, proprietor of The Thrift File Works, Philadelphia, is extending his premises and putting in additional machinery, to enable him to meet the increasing demand for his files.

A. Weed & Co., Philadelphia, who make a specialty of machinery for file makers, have had a heavy demand, and had to run overtime to catch up with their orders. They have recently been at work on brick making machinery, and will probably put something new in that line on the market soon.

C. A. Conde, Philadelphia, is making a specialty of electric light machinery, and recently received an order for 50 lamps of large size for Washington, D. C. S. J. Cresswell furnished upward of 1500 tons of cast iron work for Harrison

& Havemeyer's new sugar refinery just finished in Philadelphia.

finished in Philadelphia.

The galvanizing works of J. E. Strouse & Co., Nos. 45 to 49 Richmond street, Philadelphia have been enlarged and extended to the other street. A commodious new building has been completed on Water street for office and warercoms. The firm have just fluished a lot of work for the Philadelphia and Southern Mail Steamship Compeny. They have in operation a patented process for galvanizing sheet iron, which gives a smoother surface, and the edges are free from drippings of metal.

Most of the iron mills of Pottstown have

shut down for a week or so, to repair and take stock.

The Bechtelsville Furnace made 286 tons

The Bechtelsville Furnace made 286 tons of pig iron last week.

The furnaces, boiler and stacks of the large rolling and plate mill of Samuel Seyfert, near Gibraltar, have been completed. The building had been erected about a year ago. On Nov. 2, Robert Kirkpatrick, of Coatesville, commenced building two draft heating furnaces, two boilers and two stacks. Only three workmen besides Mr. Kirkpatrick were engaged in their eraction. Kirkpatrick were engaged in their erection. Nearly 50,000 bricks were required. The Nearly 50,000 bricks were raquired. The mill will start up about the 15th of January. It is near Seyfert's station, a flag station on the Wilmington and Northern railroad, about four miles from the city.

It is expected the new glass factory at New Brighton will be completed by January 1st, and started up as soon thereafter as prescrible.

The Speer White Sand Company, of Pitts burgh, have their three works going to their utmost capacity, and still they cannot keep pace with the demand.

#### оню.

Work on the new steel works at Columbiana will be resumed in the spring.

The stove foundries of Portsmouth are all

busy and are running full.

The Pine Grove Furnace is now the oldest iron furnace in Ohio that is still making on.—Ironton Register.
The Bloom Furnace is banked up at

KENTUCKY.

The Norton Iron Works furnace blew out Sunday for repairs. The nail department, after a short stoppage, blew out Monday and is now in full operation. The rolling mill department, stopped by a broken roll, expected to have the same replaced and to start up at once.—Ashland Independent. TENNESSEE.

The Oakdale Iron Company are running their furnaces in Roane County steadily, making 50 tons of iron a day. The fuel used is one-half coke and one-half raw coalmined on the property.

#### INDIANA

The Old American Foundry, at New Albany, after having been idle for three years, has passed into the possession of W. C. De Pauw.

The New Albany Rail Mill Company com-

plete their fiscal year this week. They intend to shut down the rail mill department for the purpose of placing new foundations under the rail train, engine and fly-wheel. Their product for this year foots up 15,-coo tons, principally rails. The new spike mill, recently put in operation, is doing very

The Penn & Gaff Mfg. Co., Jeffersonville, are full of work, employing 350 hands. They are turning out about 15 tons per day of shelf hardware, and solid and steel-faced edge tools.

#### ILLINOIS.

The American Steam Engine Works, of Chicago, report that business is fairly active

The new blast furnace of Joseph H. Brown & Co., at Irondale, is turning out a daily average of 13s tens of good iron.

The Joliet Steel Company are adding to their works new machinery for the manuture of Bessemer-steel horseshoes.

ton. They will set this with the Jarvis
Furnace.

One of a battery of three boilers in the merchant mill of the Rensselaer Iron
Works, Troy, exploded on the morning of the 22d. One man was killed.

The stock of the Ottawa Glass Company has been increased from \$17,000 to \$50,000.

The Gales & Scoville Iron Works Co., of Chicago, are constructing an immense ore crusher for the Union Iron and Steel Co.

The Thorn Wire Hedge Co. are about to Clinton.

crusher for the Union Iron and Steel Co.
The Thorn Wire Hedge Co. are about to
erect a large barb wire manufactory on
Clinton street in Chicago.
The Bottle Company, at Ottawa, have
greatly increased the capacity of their works,
and are now turning out about 70 gross per

day.

A fire at the Harrison Wire Works, St. Louis, on the night of the 18th inst., de-stroyed the rolling, annealing and tinning departments of the works. A large number of employees were thrown out of employ-ment, but will not be kept out very long, as rebuilding has commenced and will be com-pleted some time next month. The wire mill, which was not damaged, is in opera-

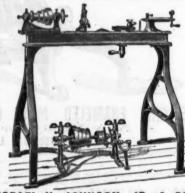
mill, which was not damaged, is in operation as usual.

We clip the following from the Age of Steel, regarding the industries of St. Louis: The Tudor Mills are running full time on railroad spikes. The Window Glass Works are being operated to their full capacity. Moran's Bolt and Nut Works are being run to their full capacity. The Great Western Class Works are running full time on prescription and druggists' glassware. The St. Louis Stamping Company's Rolling Mill is being run to its full capacity manufacturing sheet iron.

#### MICHIGAN.

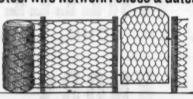
Casad & Co., of Quinnesec, have their new foundry nearly completed.
Stripping is in progress at the Commonwealth mine and every preparation making for a large output in the spring.
No. I stack of the Pioneer Furnace was

blown in again after having been repaired. No. 2 stack has run for 16 months and made 14,000 tons of iron, and 3000 more are ex-pected to be made before blowing it out.



#### ISRAEL H. JOHNSON, JR. & CO TOOL & MACHINE WORKS,

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| Sellers wm. & Co., Phila and 79 Liberty st., N.Y. 37<br>Wiley & Russell, Greenfield, Mass  | Cary & Moon, 224 W. 20th, N. V.  | Lui                   |
| American Bolt Co., Lowell, Mass  | Gaivanized Iron. Hoopes & Merry, 547 W. 15th st., N. Y   | Ma<br>dl<br>Bo        |
| Bracket Woods. Ravner J., 1: Cannon, N. Y. Uptegrove W. E., foot East 10th St., N. Y.  Brass, Manufacturers of.  | Garden Tools.  | Fo                    |
| Upterrove W. E., foot East toffi St., N. Y. 28 Brass, Manufacturer of. Ansonia Brass and Copper Co., 19 Cliff, N. Y. 2 Bridgeport Brass Co., Bridgeport. Conn. 2 Brown & Bros., 8t Chambers, N. Y. 3 Davol John & Sons, 100 John, N. Y. 22 Holmes, Booth & Haydens, 49 Chambers, N. Y. 22 Holmes, Booth & Haydens, 49 Chambers, N. Y. 22 Merchant & Co., 507 Market St., Phila. 27 Plume & Atwood Mg. Co., 80 Chambers, N. Y. 2 Rome Iron Works, Rome, N. Y. 6 Beovill Mg. Co., 41 Broome, N. Y. 2 Waterbury Brass Co., 26 Broadway, N. Y. 2 Waterbury Brass Co., 26 Broadway, N. Y. 2 | Fox & Co., Durhamville, N. Y   | 14.                   |
| Davol John & Solis, 100 John N. Y. 2211<br>Holmes, Booth & Haydens, 49 Chambers, N. Y. 2211<br>Manhattan Brass Co. 18t ave. & 27th 8t., N. Y. 2<br>Weerbant & Co. 502 Market St., Phila 222  | Grindstones.  Lombari & Co., Boston, Mass  | Of Pi                 |
| Plume & Atwood Mfg. Co., 80 Chambers, N. Y   | Wood Walter R., 283 and 285 Front, N. Y  | Tr<br>W               |
| Waterbury Brass Co., 206 Broadway, N. Y  | Handles, Spokes &c. Hundley & Hanks, 79 Reade, N. Y31  | Ma                    |
| Brass Founders. Philadelphis Smeiting Co., 12th and Noble, Paila., 31 Reeves Paul S., Philadelphia   | Handles, Spokes &c. Hundley & Hanks, 79 Reade, N. Y  | M a<br>Fe<br>W        |
| Moseley from bridge and recor con y region t   | Hardware Commission Merchants. Fernald & Sise, 100 Chambers, N. Y. Graham & Haines, 113 Chambers, N. Y. 8 Heaton & Deackla, 507 Commerce, Philis. 21 Hymes David & Co., 92 Church, N. Y. 21  | M a<br>Bi<br>Bi       |
| Butcher and Shee Knives, Hanufacturers of.<br>Wilson John. Sheffield, England  | Heaton & Denckla, 507 Commerce, Phisa21 Hymes David & Co., 92 Church, N. Y21 Hardware Dealers.   | Co                    |
| Butts and Hinges.         American Spring Butt Co., \$2 Beekman, N. Y. 38           New England Butt Co., 30 Platt, N. Y         .27           Sabin Mfc. Co., Montpeller, Vr.         .8           Stanley Works, New Britain, Conn.         .8   | Hardware Dealers. Lioyd, Supplee & Waiton, 625 Market, Phila   | J.<br>K<br>M          |
|  | Shepard Sidney & Co., Buffalo N. Y. 22  Hardware Importers of Dunne, N. Y. 28&33  McCoy & Co., 124 and 126 Dunne, N. Y. 28&33  McCoy & Co., 124 and 126 Dunne, N. Y. 28&33  McCoy & Co., 124 and 126 Dunne, N. Y. 20  Hardware Manwineturers.  Coulter, Flaster & Co., & Chambers, N. Y. 9  Covies Hardware Co., Dulonville, Conn. 33  Enterprise Mfg. Co., Phila. 27  Enterprise Mfg. Co., Geneva, O. 7  Globe Mfg. Co., Middletown, Coun. 7  Globe Hardware Co., 53 Beekman, N. Y. 28  Lloyd, Supplee & Walton, 225 Market St., Phila, Pa. 21  Miller's Falls Co., 74 Chambers, N. Y. 32  Perin & Gaff Mfg. Co., Cincinnati, O. 31  Shannon J. B. & Sons, Philadelphia, Pa. 10  Shepard Hardware Co., Buffalo, N. Y. 37  Stanley Works, New Britain, Conn. 33  Trenton Lock & Hardware Co., Buffalo, N. Y. 37  Trenton Lock & Hardware Co., Treaton, N. J. 39  Union Mfg. Co., 90 Chambers, N. Y. 37  Trenton Lock & Hardware Co., Treaton, N. J. 39  Union Mfg. Co., 90 Chambers, N. Y. 36  Hardware Special Hites. | Se St                 |
| Carriage Bolts. Makers of. Shelton & Co., Birmingham. Ct   | Counter, Fiagier & Co., 87 Chambers, N. X  | Ma<br>N.<br>Pe        |
| Townsend, Wilson & Hubbard, Financipala. 35 Carriage Hardware, Makers of, Cowles C. & Co., New Haven, Conn. 8 Smith H. D. & Co., Plantsville, Conn. 12 The E. D. Clapp Mfg. Co., Aubura, N. V. 12  | Globe Mfg. Co., Middletown, Conn   | Me<br>E               |
| Dexter Spring Co., Hulton Pa   | Miller's ralls Co., 74 Chambers, N. Y 21 Perin & Gaff Mfg. Co., Cincinnati, O  | L<br>M                |
| Oar Axles. Roberts A. & P. & Co., 265 S. 4th, Philadelphia 5 Casters. Phornix Caster Co., Indianapolis, Ind  | Stanley Works, New Britain, Conn. 27 Stanley Works, New Britain, Conn. 27 Tiebout W. & J., 32 Chambers, N. Y. 13 Trenton Lock & Hardware Co. Trenton, N. J. 30   | Me                    |
| Castings. Iron. Cheney S. & Son. Manlius, N. Y   | Union Mrg. Co., oo Chambers, N. Y  | G<br>N<br>N<br>P<br>P |
|  | Cleveland Wrought Iron Fence Works, Cleveland, O 7   | P, OPF                |
| Costings, Steel. Manufacturers of. Chester Steel Castings Co., 407 Library, Phila., Pa 38 Eureka Cast Steel Co., Chester, Fa   | Philadelphia Novetty Mg. Co., Philadelphia, Pa., 12<br>Shepard Sidney & Co., Buffalo, N. Y   | 80<br>81              |
| Pittsburgh Steel Casting Co., Pittsburgh, Pa38 Caulking Irons. Carver John. 44 North 3d St., Brooklyn, E. D., N. Y.  | Winger E. B., Freeport, III  | 178.4                 |
| Caniking Irons. Carver Sohn, 44 North 3d St., Brooklyn, E. D., N. Y. Carver Sohn, 44 North 3d St., Brooklyn, E. D., N. Y. Chains, Mansfacturers of Bradlee & Co., 5t & Richmond St., Phila, Pa 5 Round David, Cleveland, Ohio  | Kimperiin R. P. & Co., Indianapolis, Ind   | 1 13                  |
| Chains, Sash. Morton Thomas, 6c Elizabeth, N. Y  | Hay Knives. Holt Hiram & Co., East Wilton, Me Hektegraph.  | IVE 6                 |
| Clock Springs, &c.<br>Cary & Moen, 234 W. 29th, N. Y   | Heel Stiffeners.   | MI                    |
| Oeal, Miners of. Ely E. B. & S. W., New York   | Scovill Mfg. Co., 419 Broome, N. Y   | Mo                    |
| Coal Hods.<br>Griffiths Geo., Phila, Pa  | Hog Ringers. Chambers, Bering & Quinian, Decatur, Ill  |                       |
| orimths Geo., Phils. Pa. Sterbrook Wm., Philadelphia   | Holating Engines, Makers of.<br>Crane Bros., Mfg. Co., Chicago, III. 36<br>The Norwalk Iron Works Co., S. Norwalk, Conn., 35<br>Holating Machines.   | R                     |
| Coke. Wister Francis, 230 S. Third, Phila  | Hoisting Machines. Box Aifred & Co., 312 Green, Phila. Cincinnati Chain Hoist Co., Cincinnati, O   | Na<br>F<br>O<br>R     |
| Stevens J. & Co., Chicopee Fails, Mass   | Stokes & Parrish, Philada., Pa   | Na<br>P               |
| Merchant & Co., 507 Market st., Phila  | Boker Hermann & Co., 101 & 109 Duane, N. Y. 28&33  | NIC                   |
| Cern Huskers. Chambers. Boring & Quinlan. Decatur, Ill   | Waldren John Muney Pa  | 2                     |
| Corrugated fron. Moselev Iron Bridge and Roof Co., 5 Dey. N. Y 6 Cotters and tietter Keys. Browning, Sisum & Co., 85 Chambers, N. Y25  | Herse Nails, Makers of. Ausable Horse Nail Co., 4 Warren, N. Y   | Ne<br>Ne<br>Ne        |
| Rarber D. F., 1991 Washington, Boston  | National Horse Nail Co., Vergennes, Vt   | H                     |
| Cupolas. Suith & Sayre Mfg. Co., 21 Cortlandt, N. Y  | Herse Shees, Makers of. Bradlee & Co., Philadelphia, Pa. Burden Iron Works, Troy, N. Y   | 8<br>01<br>B          |
| Curry Combs Lawrence Curry Comb Co., 309 East 22d, N. Y  | Hot Blast Stoves.  |                       |
| Friedmann & Lauteriung, of Chambers, N. X  | Hydrants, &c.  McLean John, 30 Monroe, N. Y  |                       |
| Greenfield fool Co., Greenfield, Mass  | Bydraulic Jacks. Dudgeon Richard, 24 Columbia, N. Y  | On                    |
| The Wm. Rogers Mrg. Co., Hartfor J. Ct   | lce Cream Freezers. White Hountain Freezer Co., Laconia, N. H  | Pa                    |
| Differential Pulley Blocks. Yale Lock Mfg. Co., 32 Chambers, W. Y  | Hartford steam Botter Inspection & Insurance Co., 13 Insurance, Life, The Travelers' Life and Accident Insurance Co., Hartford, Conn   | Pa                    |
| Discount Tables.  Jennings S. H., Deep River, Conn.  | Hartford. Conn. Iron. (Manufacturers' Apents.) Cox. Jr., Justice & Co., 33 Walmut. Phila. Hoffman J. W. & Co., 268 S., 4th, Phila. Levis Henry & Co., Philadelphia, Pa. Lundell Chas. G. (Gwedish). Boston, Mass.  | Pa                    |
| Differential Pulicy Blocks. Yale Lock Mfg. Co., 13 Chambers, N. Y  | Levis Henry & Co., Philadelphia, Pa.<br>Lundell Chas, G. (Swedish), Boston, Mass.<br>Irou. Manuracturers qr.<br>Albany & Rensselaer Iron & Steel Uo., Troy, N. Y3o   | Pe                    |
|  | Allentown Rolling Mill Co., Allentown, Pa  | Pi                    |
| Jvea Hobert B., New Haven, Ct. 22 Drilling Machines, Makers of. Blekkford H. Cincinnati, O. 32 Folger A. E. & Co., Springfield, O. 58 Hers Wim, & Co., Philla, and 70 Liderty st., N. 33 Thorae, De Haven & Co., Philladelphia. Wiley & Russell Mfg. Co., Greenfield, Mass. 22 Dran Press Pressell Mfg. Co., Greenfield, Mass. 22  | Coleman Rolling Mill Co., Louisville, Ky   | Pi                    |
| Marrill C. & Sons cof Grand N. V   | Lang W. Bailey, & Beekman, N. Y. Logan Iron & Steel Co., Philadelphis, Pa. North Chicago Rolling Mill Co., Chicago, Ill.   | Pi                    |
| Edge Tools, Wakers of.   | Phoenix from Co., 410 Wainut, Philadelphia   | a a                   |
| Blevators Wakers of  | Home Merchant Inc.   |                       |
| Bdge Teols, Vakers of. Doscher M. 8; Chambers, N. Y. Elevaters, Nakers of. Crane Bros. Mfg. Co., Chicago, Ill  | Rome Merchant Iron Mills, Rome, N. Y.  Rowland James & Co., 920 N. Delaware avé., Phila.  Rowland Wm. & Harvey, Philadelphia   | PL                    |
| Doscher M. & Chambers. N. Y.  Elevaters, Makers of. Crans Bros. Mfg. Co., Chicago, Ill.  & Kokes & Parrian, Philadelphia.  Elevater Buckets.  Rowland T. F. Brooklyn. N. Y.  Emery and Emery Wheels.  Ashkand Emery Co., Perth Amboy. N. J.  Lytine A. A. & Co., 14 Kurray, N. Y.  Lytine A. A. & Co., 14 Kurray, N. Y.  Visribed Wheel Co., Westfield, Mass.  | Albany & Rennselaer Iron & Steel Uo., Troy, N. Y., 30. Allentown Rolling Mill Co., Alientown, Pa. Britton Iron and Steel Co., Cleveland, Ohio. Buden Iron Works, Troy, N. Y. Coleman Rolling Mill Co., Louisville, Ry. Kirkpatrick & Co., Pitsburgh, Pa.  Kirkpatrick & Co., Pitsburgh, Pa.  Logal Iron & Steel Co., Philadelphia, Pa.  Logal Iron & Steel Co., Philadelphia, Pa.  Portsmouth Iron and Steel Co., Portsmouth Ohio. Roane Iron Co., 410 Wainut, Philadelphia, Portsmouth Iron and Steel Co., Portsmouth Ohio. Roane Iron Co., Chattanooga, Tenn.  Rome Merchant Iron Mills, Bome, N. Y. Rowland James & Co., 20 N. Delaware ave., Phila, Rowland Wm. & Harvey, Philadelphia.  Shoenberger & Co., Pitsburgh, Pa.  Taylor & Bogdis Cleveland, O.  The Passauc Rolling Mill Co., Paterson, N. J.  Williams, Long & McDowell, Pitsburgh, Pa.  Wood alan & Co., Arch, Philadelphia.  Zug & Co. Pitsburgh, Pa.  | PI                    |

| I      | HE IRON AGE  | T   |
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| Ī      | Iron Brokers,<br>Boynton Geo. A., 70 Wall, N. Y  | P   |
|        | Ires Brokers, Boynton Geo. A., 70 Wall, N. Y   | P   |
| l      | Iron, Charcoal, Warm or Cold Blast. Logan Iron & Steel Co. Philadelphia  | P   |
| -      | Quincy John W., 88 William N. Y  | P   |
| l      | Heberton & Co., Philadelphia   | P   |
| ı      | mohr J. J., 420 Walnut, Philadelphia 5 Richardson J. O., 22 Dock, Philadelphia 5 Wister L. & R., 323 Walnut-Phila 1 Fron Dealers. Abeel Brothers, 190 South N. Y. Adams Hugh W., 46 Pine, N. Y. Bonnell, Botsford & Co., Youngstown, O. & Borden & Lovell, 70 and 71 West, N. Y. Bonnell, Botsford & Co., Youngstown, O. & Borden & Lovell, 70 and 71 West, N. Y. 4 Carmichael & Emmens, 190 and 123 Cedar, N. Y. & Carmichael & Emmens, 190 and 123 Cedar, N. Y. & Lasteston Bros & Co., 160 South, N. Y. & Lasteston Bros & Co., 160 South, N. Y. & Lasteston Bros & Co., 160 South, N. Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 S. Fourth, Philadelphia, 5 Judion B. F., 45 Co., 100 Judion Boston, Mass. Jundell Chas. G. (Swedish), Boston, Mass. Judiell Chas. G. (Sw. Judielphia, P. Judiell Chas. G. (Sw. Judielphia, P. Judiell Chas. G. (Sw. Judielphia, P. Judielphia, P. Judielphia, P. Judielphia, P. Judielphia, P. Judielphia, P. Judielphia, Judi | P   |
|        | Adams Hugh W., 46 Pine, N. Y. 4 Bonnell, Botsford & Co., Youngstown, O. 4  |     |
|        | Borden & Lovell, 70 and 71 West, N Y   | P   |
| ١      | Harrison & Gilloon, 5:8 to 56: Water, N. Y   | P   |
| ı      | Kane C., Pittsburgh, Pa  | P   |
| ١      | Lundberg Gustaf, 38 KHBy, Boston, Mass   |     |
| ı      | Middleton W. S., 52 John, N. Y   |     |
| l      | Page, Newell & Co., Boston, Mass. 77<br>Pierson & Co., 24 Broadway, N. Y. 4<br>Pullman J. Wesley, Philadelphia, Pa. 5  | H   |
| l      | Quincy John W., 88 William, N. Y.<br>Richards D. W. & Co., 92 Mangin, N. Y   | -   |
| ١      | Wallace Wm. H. & Co., Albany and Washington<br>streets, N. Y.<br>Warner A. B. & Son, 26 and 20 West, N. Y.   | H   |
| ١      | Williamson James & Co., 69 Wall, N. Y. 4<br>Wilson, R. A. & Co., Pittsburgh Pa. 4<br>Whitney A. R., 48 Hudson, N. Y. 4   | H   |
| ١      | Iren, Pig, Importers of.<br>Clark E. W. & Co., Philadelphia, Pa  | -   |
| ١      | Lundell, Chas. G. (Swedish), Boston, Mass  |     |
|        | Iron. Sheet. Manufacturers of. Summers John & Sons, Stalybridge, England22 Wood W. D. & CO. Pittsburgh. Pa   | B   |
| ١      | Iron Stable Fixtures.   Howard & Morse, 45 Fulton, N. Y   2   Lanterns.   Manufacturers of:   Diets R. E., 54 and 55 Fulton, N. Y   38   Howard & Morse, 44 Fulton, N. Y   22   Miller Edw'd & Co., 95 Warren, N. Y   25   Lathe Docs.   | B   |
| l      | Dietz R. E., 54 and 55 Fulton, N. Y  | B   |
| I      | Coles H. H. & Co., Philadelphia, Pa  | 8   |
| ١      | Disston Henry & Sons. Philadelphia32 Jennings C. E., of Chambers, N. Y   | 8   |
| 1      | Disston Henry & Sons. Philadelphia. 32 Jennings C. E., 6 Chambers, N. Y. 7 Locks and H nobs.— Manufacturers of. Bohannan Wilson, Brondway and Kossuth, Brook Ivn, E. D. Branford Lock Works, Branford, Conn. 32 Counter, Fingler & Co., 87 Chambers, N. Y. 9 D. K. Miller Lock Co., Philadelphia, Pa. Durrie & McCarty, 97 Chambers, N. Y. 11 Hillebrand & Wolf, 110 S. 8th. Philadelphia. 35 Mallory, Wheeler & Co. New Haven. Conn. 31 Romer & Co., Newark, N. 35 Smith & Egre Mg. Co., Bridgeport, Conn. 32 Yale Lock Mgs. Co., 53 Chambers, N. Y. 3 Lubricator.  | 8   |
| ١      | Branford Lock Works, Branford, Conn  | 8   |
| ١      | Durrie & McCarty, 97 Chambers, N. Y  |     |
| ١      | Romer & Co., Newark, N. J. 35<br>Smith & Egge Mfg. Co., Bridgeport, Conn. 12<br>Yale Lock Mfg. Co., 53 Chambers, N. V. 19  | 8   |
| ١      |  |     |
| ١      | Machinery, Makers of. dilss & Williams 167 Plymouth, Brooklyn  |     |
| ١      | nins & Williams 107 17 yrmouth, Brooklyn. 30 Box Alfred & Co. 312 Green, Phila. 37 Cooke Wm., 6 Cortland, N. Y. 57 Forsath S. C. & Co., Manchester, N. H. 56 Garvin E. E. & Co., 130 Centre, N. Y. 57 Johnson, Israel H. Jr., Philadelphia, Pa. 34 L. B. Flanders Machine Works, Philadelphia, Pa. 34 Lyon E. & Co., 470 Grand, N. Y. 50 Mohawk & Hudson Mig. Co., Waterford, N. Y. 52 Oram & Atherton, Cleveland, O. 58 Fittsburgh M.R. Co., Pittsburgh, Pa. 58 Stokes & Parties, Phila, and 79 Liberty st., N. Y. 37 The Stiles & Parties, Phila, Fa. 58 The Stiles & Parties, Phila, Fa. 58 Wetherfill Robert & Co. Co. Middletown, Ut. 58 Wetherfill Robert & Co. Co. Middletown, Ut. 58 Wetherfill Robert & Co. Co. Middletown, Ut. 59 Wetherfill Robert & Co. Co. Middletown, Ut. 59 Machinery (Barnes's Frost Power, Little Chas. E., 65 Fulton, N. Y. 10 Machinery (Barnes's Frost Power, Fellows John, Wikiamsburg, N. Y. 58 Waterburty M.R. Co., Waterbury, Conn. 38 Machinets' Teols. Blainfall P. & Co., Worrester, Mass.  |     |
| ١      | L. B. Flanders Machine Works, Philadelphia, Pa. 34<br>Lyon E. & Co. 470 Grand, N. Y. 36  |     |
| 1      | Monawk & Hudson Mfg. Co., Waterford. N. Y  |     |
| 1      | Sellers Wm. & Co., Phila. and 79 Liberty st., N. Y. 37<br>Stokes & Parrish, Philada., Pa   | 1   |
|        | Wetherill Robert & Co., Chester, Pa. 37<br>York & Smith, Cleveland, O. 16<br>Machinery (Rappes's Frant Pawer, 16   | 1   |
|        | Little Chas. E., to Fulton, N. Y   |     |
|        | Waterbury Mfs. Co., Waterbury, Conn 2<br>Machinists' Teols,  | 8   |
|        | Brooks A. G. & Winebraner, Philadelphia, Pa16<br>Bullard E. P 14 Dey, N. Y.  |     |
|        | Cooke Wm., 6 Cortland N. Y   | 8   |
|        | Waterbury Mr. Co., Waterbury, Conn. Marshinsts' Teole, Blaisdell P. & Co., Worcester, Mass. Brooks, A. G. & Wincorener, Philadelphia, Ps. 16 Bullard E. P. 11 Dey, N. Y. Cooke Wm., 6 Cortland N. Y. Cooke Wm., 6 Cortland N. Y. Cooke Wm., 6 Cortland S. Y. Li Chambers, N. Y. 16 Geo. Place Machinery Agency, 121 Chambers, N. Y. 16 Harrington E. & Son, 15th st. and Pennsylvania ave., Philadelphia, Ps   | 5 8 |
|        | Marcellus C. N. & Co., 91 Liberty, N. Y<br>Sellers Wm. & Co., Phila. and 79 Liberty st., N. Y., 37<br>Stockwell Screw & Machine Co., Cleveland, Ohio., 36  | 3 8 |
|        | Penfield Block Works, Lockport, N. Y 36  | 6   |
|        | Eddy Goo M & Co. see Classon Ava. Brooklyn N.V.  | . 1 |
|        | Meat Cutters. Kimball Shovel Co., Baltimore, Md  | 9   |
|        | Metals.  Dickerson, Van Dusen & Co., 29 and 31 Cliff. N. Y   | 2 6 |
|        | Dickerson, Van Dusen & Co., 29 and 31 Cliff, N. Y of Goldsmith Moses & Son, Charleston, S. C of Naylor & Co., 99 John, N. Y  | 1   |
|        | Pheips, Dodge & Co., Cliff, bet. John & Wilston, N. Y. :<br>Phosphor Bronze Smelting Co., Liffnited, 2038<br>Washington av. Phila  | 1 8 |
|        | Purves A. & Son, cor. South and Penn, Phila. Quincy J. W. & William N. Y. Read D. W. R. & Co., 2004 Wainut, Phila. Schoenberg Metal Mrg. Co., 426 & 530 E. 20th, N. Y. Starr John. Halifax, Nova Scotia. 2.  | 5 8 |
|        | Schoenberg Metal Mfg. Co., <28 & 530 E. 20th, N. Y Starr John. Halifax, Nova Scotia  |     |
| 9      | Metals, Pertorated Sheet.<br>Harrington & Oglesby, Chicago, Ill  | 4   |
|        | Metaliurgists.  Booth, Garrett & Blair, 919 Chant, Philadelphia  | 5 1 |
|        | Mica. Peckham J. S. & M., Utica, N. Y.  Mine Lamps. Leonard Brot. Scranton. Pa.  | 1   |
|        | Miners' Candles, Makers of.  James Boyd's Sons, 10 and 12 Franklin, N. Y.  | 6   |
| 1      | Mineral Wool,<br>Elbers Alexander D., 261/4 Broadway, N. Y   | 7   |
| -      | Molasses Gares. Kimball Shovel Co., Baltimore, Md  | 1   |
| 5      | Dietz R. E., 54 and 56 Fulton, N. Y  | 8 4 |
| ,      | Eipley Mig. Co., Unionville, Conn  |     |
| 5 7 7  | Nais. Fuller Bros. & Co., 130 Greenwich, N. Y. Oxford Iron Co., 81 Washington, N. Y. Rowland Jas. & Co., 230 N. Delaware, Ave., Phils. Schoenberger & Co., Pittsburgh, Pa Zug & Co., Pittsburgh Pa   | 4   |
| 5      | Zug & Co., Pittsburgh, Pa  | 4   |
| 3      | Nail Machinery, Pittsburgh Mfg. Co., Pittsburgh, Pa  | 6   |
| 2      | Nickel Pinters' Supplies, Condit, Hanson & Van Winkle, Newark, N. J 2 Wharton Joseph, Philadelphia, Pa   | 9   |
| 5      | Naylor & Co., 99 John. N. Y  | 08  |
| 58 1 2 | Nuts. Bolts, etc., Hakers of. Allentown Rolling Mill Co., Allentown, Pa. Haskell W. H. & Co., Pawtucket, B. I. stussell. Burdsall & Ward. Port Chester, N. Y. Standard Nut Co., Pittsburgh, Pa. Sternbergh J. H., Reading, Ps.   | 5   |
| 5      | Russell. Burdsall & Ward. Port Chester, N. Y   | 8   |
| 4 1 1  | Sternbergh J. H., Reading, Ps  | 4   |
| 4      | Geo, Chase, 107th and Harlem River, N.Y.   | 0   |
| 9      | Ores. Jackson Iron Co., Cleveland, O., Liora J., 77 William, N. Y., Pullman J. Wesley, 407 Wainut Philadelphia, Bead D. W. R. & Co., 205/5 Wainut, Philadelphia.   | 6   |
| 3      | Pullman J. Wesley, 407 Wainut Philadelphia<br>Bead D. W. R. & Co., 2053/2 Walnut, Philadelphia   | 5   |
| 8      | Greenfield Tool Co. Greenfield, Wass   |     |
| 7      | Packing. Akron Rubber Co., Akron. O. Katzenstein L. & Co., 3s Desbrosses, N. Y Patent Soilcitors.  | 7   |
|        | Patent Solicitors.  A Section of  | 5   |
| 555    | Knight H. W., Seneca Falls, N. Y.<br>Pens, Steel.<br>Esterbrook Steel Pen Co., New York.   | 3   |
| 4      | Anight it. w., ceneca Fails, N. Y. Pens, Steet. Esterbrock Steel Pen Co., New York   | 5   |
| 56 4   |  |     |
| 44     | Pipes. Fittings. etc Makers of.  MoNab & Harlin Mig. Co., 55 John, N. Y  | 5   |
| 452    | Ripley & Kimball, St. Louis, Mo  | 4   |
| 4661   | Mellert Foundry and Machins Co., Limited, Reading, Ps  | 2   |
| 5      | Wood R. D. & Co., 400 Chestnut, Philadelphia   | 5   |

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| Pinted Ware, Hall. Elton & Co., 7s Chambers, N. Y   | 8  |
| Plumbers' Materials, Manufacturers of.  Everhart Jas. M., Scranton Pa   |    |
| Everhari Jas, M., Scranton Pa. 98 Pocket Knives. Boker Hermann & Co., 101 Duane, N. Y. ,28233 Pots and Kettles. Ten and Coffee. Ideal Coffee Pot Co., Philadelphia, Pa. 33 Purvis R. C., Philadelphia. 25 Power Hammers. Bradley & Co., Syracuse, N. Y. Dieneit, Eisenbardt & Co., Philada, Pa. 36 Presses, Fruit and Vegetable. Mohawk & Hudson Mrz. Co., Waterford, N. W. 25 Presses, Power, Makers of. Beccher & Peck, New Haven, Ct. 34 Hills & Williams, 107 Plymouth. Brookiya 36 Merriman A. H. West Meriden, Conn. 37 Peerless Punch & Shear Co., 52 Dey, N. Y. 37 Tho Stilos & Parker Press Co., Middletown, Ct. 38 Pulieva. Pennield Block Works, Lockport, N. Y. 36  | 8  |
| Ideal Coffee Pot Co., Philadelphia, Pa  | 5  |
| Bradley & Co., Syracuse, N. Y   | 1  |
| Presses, Fruit and Vegetable,<br>Mohawk & Hudson Mfg. Co., Waterford, N. Y 25   |    |
| Beecher & Peck, New Haven, Cr   |    |
| Peerless Punch & Shear Co., 52 Dey, N. Y  |    |
| Pullevs,<br>renfield Block Works, Lockport, N. Y  |    |
| Providence Tool Co., Providence, R. I. 24 Putlev Cover, Co., 14 South William, N. Y. Wright C. Le Co., 14 South William, N. Y. Pumps, Jakers of, Douglas W. & B., Middletown, Conn  | 8  |
| Douglas W. & B., Middletown, Conn   |    |
| Conn.  Conn.  Conn.  Telegraphic Conservation of the Conservation | 8  |
| Rumsey & Co., Seneca Falls N. Y   | 0  |
| Raits. Iron and Steel. Makers of. Allentown Rolling Mill Co., Allentown, Pa   | 8  |
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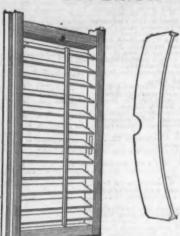
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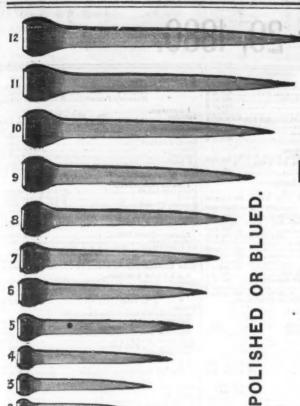
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| A nvils. American 3 noc dis 20 % Wright's   | Ass. Brass, Tiebout's   dis 408  | Meriden Cuttery Co. (Table).  Am. Miller Bro.'s Cuttery Co. dis s Hunsson & Beckley, Pocket. dis s 10 5 The wm. Rogers Mrg. Co. 10 5 Auron Burkinshaw's Pocket. dis 24 4 Aron Burkinshaw's Pocket. dis   | Humason & Beckley   dis 50     Verree   | Lanterns. Tubular  |
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| itation of a second   | Union Spring Hinge Co. s. dis<br>American Spring Hinge Co. s. dis<br>Union Mfg. Co. dis<br>Bommer's. dis<br>Biling Butts, Parker. dis  |  | 0 \$ socket " large, " 0.00 dis<br>0 \$ socket " assorted, " 5.00 20&10 \$<br>File, assorted, \$ gross  | Round Rey, No. 7 to 4  |
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|   | and the second s | Wilson's Drill Stocks  | S Hatchers  | Ment Cutters. Dixon's (P. S. & W.) Nos. x 3  |
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| le, Brad Sets, &cc.  Sewing, Commen F gross \$1,70—dis 25&10 1  Shouldered Peg F gross 2-45—dis 25&10 5  Patent Peg F gross   | Spraguedis 4 @1. Cnps.—Percussien, # 2000. U. M. C. P. C. trimmed  | National   | Lathing Nos. 1 2 3 # doz 7.75 8,50 9.25   | Hales'Nos. 11 9 dos. \$15.00 160 dis 35 \$   |
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| Broaddis 45&10   | W   610                                     |
| Lorse Joint, Broad   | A CH  |
| Loose Pin, Wrt   | Star No.                                    |
| Gem Spiral Spring Butts, Japanned  | % No.<br>% No.<br>% Sabii                   |
| Rabin Mrg. Co.'s Double Acting   | % Sabir<br>% Sabir<br>% Phile               |
| Union Spring Hinge Co. a. dis 25 American Spring Hinge Co. a. dis 25 Union Mfg. Co. dis 25 Economer dis 25   | % Bark<br>% Cowo<br>% Rubb<br>% Herc        |
| Spring Hinges: American Spiral Spring Butt Co., Jap'd., dis 22 American Spiral Spring Butts, Japanned., dis 26 Gem Spiral Spring Butts, Japanned., dis 26 Geer's Spring and Blank Butts., dis 26 Sabin Mig. Co. 's Double Acting., dis 35 Union Spiral Spring, Japanned., dis 25 Union Spring Hinge Co. 's dis 25 American Spring Hinge Co. 's dis 25 American Spring Hinge Co. 's dis 25 American Spring Hinge Co. 's dis 25 Bonmer's., dis 25 Bonmer's., dis 25 Bonmer's., dis 26 Shepand's "Double Locking" Nos. 12 4. "Noiseless," Nos. 60 & 60 - 60 - 60 - 60 - 60 - 60 - 60 -  | S Arlin                                     |
| Nos. 1 & 4   | % Merr<br>Noble<br>Brad                     |
| " Nicholsondis 45&10 " Hufferdis 50  | Adju<br>With                                |
| Mars Dies  | Black                                       |
| Rotchkiss' tow list no Humason, Beckley & Co.'s  | Black<br>Break                              |
| Butchers' Cleavers.   dis 20   dis 20 | g Breas                                     |
| \$10'90 10'00 21'40 38'00 21'00 2000 22'20 30'40   | 66  |
| Can Openers  |   |
| American   | Autor                                       |
| No. 5, Iron Handle   | E C   |
| Star dos \$5.00, dis 20.425;<br>Sprague  | Natio<br>Famil                              |
| Sprague  | Kie Mill E                                  |
| G. D. & S. B   | MIN E                                       |
| F. L. 500 dis roe E. B. 1-10 Ground Edge 700 5   | Km<br>Genui                                 |
| Cartridges,—Rim  | Wash  |
| Cards.—Horse and Curry. dis 10 f<br>Cotton. dis 10 f<br>Wool. dis 10 f   | Excel                                       |
| Carpet Stretchers.  Cast Steel, Polished   |   |
|  |   |
| Castle Leaders.  Dew list July, '20, dis 40 % Plate and Shallow Socket   | Kna<br>Kettie<br>Sauce                      |
| Cattle Leaders.  isumason. Beckley & Co.'s   | Tinned                                      |
| Barent's dis 5,210 %  ('hain,  | Brass.<br>Esca<br>Door L                    |
| Coll. New list Oct. 22, "9   | Brass T<br>Wood                             |
| Jack Chain, Iron   | Fenn's                                      |
| Chaik. 9 gross 60c net  White. 9 gross 60c net  ted 9 gross 60c net  white Cravous 4 gross cont  White Cravous 5 gross 10c   | Star<br>Frary's<br>Wood<br>West's           |
| Chiseis. locket Framing, Crossman  | Enterp                                      |
| Chiseis.  locket Framing, Crossman   | File<br>Auburn                              |
| ** Douglass'   | Arcade<br>Black  <br>E. M. B<br>Nicholi     |
| Buck Bros. (Shank). 5.25   | Madde:<br>Heller<br>Hiscox                  |
|  | J. & Ri                                     |
| Buck Bros. (Shank)   | Walter<br>Fisher's<br>Moss &                |
| Clamps   | H. Diss<br>Wester<br>Limet &<br>Union       |
| # Hammer's   | Knox,                                       |
| Corriage Makers', Sargent's  | Peerles                                     |
| drway or Best  | Engie,                                      |
| Coal Hods.         dis 33½ %           Cockeyes.         dis 25 %  | Crown.                                      |
| Cocks. Brass. acking new list, July 10, '80')  | Star<br>Crown<br>Americ<br>Domest           |
| #1-#2- BB##4-  | Geneva<br>Crown<br>& dos<br>Shepar          |
| Coffee Mills. oard and Boxnew list, Jan., 1880, dis 35 % torease Wilson'snet   | Clark's                                     |
|  | Combin<br>Buffalo<br>Fluti                  |
| Cempined Dinner Pail and Lantern.  | Hay. Mar. Mar. Mar. Mar. Mar. Mar. Mar. Mar |
| Compassos, Dividers, &c.   | Fruit                                       |
| Alisers  | America<br>Frv I<br>Burnish                 |
| Wing & Inside or Outside dis cock 5  Wing & Inside or Outside dis cock 5  Double dis 60 5  Call's Pat. Inside dis 9 5  | No<br>₩ dom<br>"Acme"                       |
|  | Gana  |
| Coopers' Tools.  | Wire  |
| Oorkserews.—Rumason & B  | "Bee" (                                     |
| Crow Bars.   | Double                                      |
| ust Eteel \$\pi 8.4000. Bicel Points \$\pi 8.6)4c  Durling Irons, &c.  | Glue  |
| Traing Trains, 42c,   4   4   4   4   4   4   4   4   4  | Family,                                     |
| UNITY Combs.   | Grind<br>Sargent<br>Reading                 |
| con's (List of 20. 20, 21)   | U. M. C.                                    |

| sale Prices, L   | 八                           |
|--|-----------------------------|
| Cutierv.  Meriden Cutiery Co. (Table)  | net<br>KK                   |
| The wm. Rogers Mfg. Co   | net<br>net<br>15 %          |
| Deer Springs. Torrey's Rod   | 5 %                         |
| Profession   | net<br>o %                  |
| No. 4 Small  | 0%                          |
| Start(Coll)  | 0%                          |
| Warner's   | *****                       |
| Drawing & Bivess   | *******                     |
| Drills and Drill Stocks. Slacksmites   | et<br>«                     |
| Hotehkissdis a   | 5                           |
| " Miller's Falls   | N. S. S. S. S. S.           |
| Wilson's Drill Stocks. dis of Automatic Boring Tools. each \$2.5, dis 20 Drill Chucks.—Morse's Beach Patent dis 30 Danbury. Adjust.each \$1000. dis 30   | 8                           |
| Egg Senters. # doz. \$2.50 m National # doz \$4.50, dis 33/5 Family per gross \$15; per doz., \$1.50 m   | et 1                        |
| Elevator Buckets.  Mill E. Buckets, light, 3½ to 10 in. (Duc's Improver  # 100 \$15,00 @ \$54,00, no  Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improver  # (Joz \$1.60 @ \$10.00 m  Storehouse, Duc's Patent) 12 to 17, \$12.00 @ \$2.00no  | t   3                       |
| Emery and Emery Paper.<br>Genuine Chester—Regular Nos  | 1                           |
| " Flour and FF   | 0                           |
| Wellington Hills, Grain. 10-lb. cans. 12 lb. www. 12 lb. cans. 12 lb.  | e t                         |
| 8, & A. Emery Paper. dis 20224  Knameled and Tinued Ware.  Kettles. 45  dauce Pans. dis 30  Tinned Sauce Pans. dis 30  Escutcheen Pins. dis 20  Addis 20  Addis 20   | 8 0                         |
| Tinged Sauce Pans dis 30  Escutcheen Pins dis 20  Frass dis 45  Escutcheens Door Lock Same discounts as Door Lock  | 1                           |
| rass Threaddis 55  | R                           |
| Tenurets   | H<br>Sc                     |
| Felloe Plates  | Sc Gi                       |
| M. Boynton's. bew list, dis 25 cilcholson. Nicholson List dis 25 cilcholson. Nicholson List dis 25 cade a Cockayne File Co. dis 25 cilcholson new list. dis 15 cilcox File Mfg. Co., new list. dis 25 cilcox File Mfg   | Sc Hi                       |
| Felloe Plates.   | Bi                          |
| cestern (new list)   | Be                          |
| " g "  | Ce<br>Ha                    |
| ** \$ .  | Ta<br>W                     |
| Innet & Co. (French)   | Ho                          |
| lark's Hand Fluter \$\text{\chi} \text{dos} \text{\chi} \text{dos} \text{\chi} \text{\chi} \text{dos} \text{\chi} \text{\chi} \text{dos} \text{\chi} \text{\chi} \text{\chi} \text{\chi} \text{dos} \text{\chi}  | A No                        |
| ay, manure and spyring   | 1                           |
| nterorise Mfg. Co  |                             |
| Came   | No<br>Wi<br>Du<br>Wo<br>Iro |
| Smith's Patent # dos \$18.00, dis 20 \$<br>  Climiets   dis \$18.00   dis 45 \$     il and Spiko # 47058 \$12.00 dis 62.00     cureka Gimlets   dis 05     dis 05   dis 05   | Cor                         |
| Gimieta Fatoni. W dos \$18.50, dis 45 \$ ali and Spiko. dis 45 \$ ali en d'Spiko. dis 65.210 \$ kureka Gimiets. dis 65.210 \$ kureka Gimiets. dis 45 \$ kureka Gimiets. dis 55 \$ dis 45 \$ kureka Gimiets. dis 50 \$ kureka Gimie | Bri                         |
| mily, Howe's "Eureka"dis 40 %  | Moi<br>Ha:<br>Fait<br>Car   |
| gent's Pasens  | Bas<br>Her<br>Doc           |

| Hammons. dis 1 Cheney's dis 2 Cheney's dis 2 Humson & Beckley dis 5 Verree dis   | 55005    |
|--|----------|
| Humason & Beckley  | 05055    |
| Tower's dis a  | 5%       |
| Nos  | et %     |
| Lifting  | AME      |
| Brad Awl # gross \$2.00, dis 20&10   | 18       |
| Apple " " Large d, " 500  Apple " " Large d, " 500  Socket " " Large d, " 500  Socket Framing " assorted, " 500  File, assorted, \$\vec{v}\$ gross   | % et     |
|  |          |
| Barn Door, old patterns dis co&10  "New England. dis 6o&20 Noveity dis 4 Challenge dis 50 Climax (Anti-Friction). dis 6o&20 Sterling Improved (Anti-Friction). dis 6o&20 Cheritree dis 50 Kidder*s dis 50 Kider*s dis 50 Ki   | RHHHH    |
| Harness Snaps.  Henshaw'sList of 1½ changed to 14 co, dis 50&10 Judd's " " 14.00, dis 50&10 Fitch's (Bristol) " 14.00, dis 50&10 Great Western   | ***      |
|  | 5        |
| ## achess. ## stain Blood  | × X      |
| Claw, Nos. 1 2 3 # doz 7.75 8.50 9.25<br>Lathing, Nos. 1 2 3 # doz 7.50 8.24 9.00<br>Hurd's  |          |
| Bhingling, Nost. 2 3.   \$\frac{1}{2}\$ dos \$\frac{8}{2}.0. \ \$\frac{8}{2}\$ dos \$\frac{8}{2}.0. \ \$\frac{9}{2}\$ dos \$\frac{8}{2}.0. \ \$\frac{8}{2}\$ dos \$\frac{8}\$ dos \$\frac{8}{2}\$ dos \$\frac{8}{2}\$ dos \$ |          |
| Rroad,   Nos. 1 2 3 4  |          |
| Hay Knives. "Lightning" # doz \$20,00 ne: Wadsworth's  | t        |
| Hingos.  Gato, Western   |          |
| " N. E. Reversible   |          |
| "N. E. Reversible \$\psi \text{doz} \circ \cdot \circ \ci  |          |
| Plate Hinges { 8, 10 & 12 ln. \$6.50 \( \) 100 \( \) b { \cdots \c  |          |
| L 40 to  | - 10     |
| socket   | 111      |
| "lanters"  | 1        |
| Vinsted & Lane, Planters   | 1        |
| Cott on, Patented (N. Y. Mallet & Handle Wks), dis 3c<br>Cotton (Humason & Beckley Mfg. Co.)dis 40 %   | -        |
| kelt. (new list Dec. 24. 1870.)  | 3 2      |
| telling) Sargent's list  | 100      |
| assel (T. & S. Mfr. Co.).  "Staples and Staples, dis Scinoëra (Scinoëra)  "Staples, Stanley's list.  "It spies, sp   | PETECH   |
| Herse Nalls.  Nos. 5 6 7 8 9 19  usable  |          |
| O  | BH HORBR |
| Horse Shoe Co., Perkins' Improved Light,   | Pos      |
| uie Snoes. \$\psi \text{Reg} \cdot \c  | 8 150    |
| itchen ice Tongs   | BEVE     |
| Cettles. Brass, 7 to 15 inches inclusive. We a 540 net cass. Larger than 13 inches. We be not cass. Larger than 14 inches. dis 45 % Knives. dis 25 % Milyes.   | EP       |
| "Shoe   dis 1.5     "Shoe   dos \$1.50     Bread   dis 1.5     Bread   dis 2.5     Bread   dis 2.5     Street   dis 2.5     And Straw   Wadsworth's   dis 2.5     Bee Uniter;     Knebs.   dis 5.5 &105     Knebs.   dis 5.5 &105     Cap'd Soc. # gross)   dis 5.5 &105   | HJBJI H  |
| rriage (Jan'd 500. \ gross)dis 55 & 105<br>se—Commondis 30&105   |          |

| -                                       |   |
|---|---|
| 1 % % 1 % 1 % 1 % 1 % 1 % 1 % 1 % 1 % 1 | Ladles. dis coan Reading. dis coan dis coan Monroe's Patent. F dox \$4.co, dis 4co  |
| 0%                                      | Lanterns. TubularNo. c, \$8.65; No. 1, \$10.12 \\ With Guards 332 extra (10   |
| 5%                                      | Lanterns  |
| 9%                                      | Yankee. dis 102 to<br>De Beque. dis 102 to<br>Police. Small, \$7.00; Med., \$3.25; Large, \$12.00, dis  |
| 0 %                                     | Lemon Squeezers. Porcelain Lined  |
| et 0%                                   | Lemon Squeezers.   P dos \$6.00—dis 30   Wood   Wood   P dos \$6.00—dis 30   Wood   P dos \$6.00—dis 30   Eureks, Tinned   P dos \$6.00—dis 30   Eureks, Tinned   P dos \$6.00—dis 30   Dunlap's Improved   P dos \$6.00 w dos \$6.00   Mos \$6. |
| ***                                     | Alnes   Linen Fish  |
| MMMM                                    |   |
| *                                       | Lecks and Latches. Cabinet—Eagle  |
| 1 %                                     | Flat Key  |
| et<br>et                                | A. E. Detw  |
| MMM                                     |   |
| RHHHH                                   | Norwalk   |
| *                                       | Padlocks—Hussell & Erwin  Mailory Wneeler & Co and a % for cash  Wm. Wilcox & Co and a % for cash  Yale Lock Mfg. Co.'s "Standard"  |
| * **                                    | Reading Hardware Co   |
| MANA                                    | Mailets.—Hickory  |
| *                                       | Ment Cutters. Dixon's (P. S. & W.) Nos. z  # doz\$14.00 17.00 19.00 30.00—dis 31 %  |
| X X                                     | Meat Cutters.   Dixon's (P. S. & W.) Nos.   1   |
|   | Hales'Nos, 11 12 13 15.00 dis 35.5 Draw CutNos, 2 2 5 5 5 10.00 dis 40&10&2.5   |
| ×                                       | Each\$5,000 75,00 80,00 225,00 400,00—dis 20 5  Mos   |
|   | Each. \$6.00 75.00 80.00 225.00 \$60.00 -dis 20 5 Memorloan.  Nos. 1 3 4 1 3 5 4 1 3 5 4 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1  |
| 8                                       | W doz   |
|   | Mincing Knives.  Am. (2d quality) per gross, 1 blade, \$7: 2 blades, \$12: 3 blades, \$18: Latinop's.  Ail (4d quality) per gross, 1 blade, \$7: 2 blades, \$10: Catter of the state of the stat   |
| t                                       | Melasses Gates. Stepons Patters   |
|   | Molasses Gates  |
|   | Boss, No. 1 2 3 4 4 5 5 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6 6   |
|   | Natis and Washers. See Trade Report Nuts and Washers. 7% of filst exagon Nuts . 7% of filst Washers. 7% of filst Washers. 7% of filst Washers. 7% of filst Washers. 7% of filst Nut Crackers and filst  |
|   | Nut Crackers  Table (Humason & Beckley Mfg. Co.)dis 33% \$  |
|   | Curner & Seymour Mfg. Codis 10 % Oakum. Best. # 5 110   |
| 1                                       | NAVY # B 100  Ollers,—Zinc and Tin dis co ≤ Brass and Copper dis co ≤   |
| i                                       | Prior's Patent or "Paragon Zine   |
| 1                                       | Comparison   Com  |
| I                                       | Faber's Carpenters'High list, dis 40&20 \$ "Round Gilt "gross \$5.24 net plixon's Lead "gross 4.50 net  |
| N                                       | Dison's Carpenters'   |
| B                                       | Ox Balls Dencils Lead. High list, dis 408105 Packliss Fabor's Carpenters'. High list, dis 408105 Fabor's Carpenters'. High list, dis 408105 Fabor's Carpenters'. High list, dis 408105 Fackling, Steam. Ly Beiting and Packling Co. new list net Picture Rails. Frass Head, Sargent's List. dis 408105 Forcelain Head, Sargent's List. dis 408105 Forcelain Head, T. & S. Mfg. Co. dis 408105 Fineling Fabor List. dis 408105 Fineling Machines.  |
| N                                       | orcelan Head, T. & S. Mrg. Co   |
| AC                                      | Piniting Machines.  agic  |
| B                                       | France and France France France France France Grant Quality dis 2527/4 % "Second "dis 3027/4 % oulding dis 25 % Co.) new list Jan 200 dis 25 % oulding dis 25 % of the State o  |
| TBDP                                    | Planes and Plane Irons.   dis 252/4   1   |
|   | eflance Adjustable  |
| В                                       | Onto Tool Co  |
| HUS                                     | Bandusky Tool Co.   dis \$25  |
| RP                                      | ussell's Parallel dis 20 % S. & W. Cast Steel dis 35 % Tinners' Cutting Nippers dis 15 %  |
| Di<br>Si                                | Plumbs and Levels. at 5 ps. 15  |
|   | hapin's Patent Adjustabledis control  Non-Adjustabledis control  andard Rule Co.'s Non-Adjustabledis control  Non-Adjustabledis control  dis control   |
| Di                                      | reget Lavels  |
| E                                       | reka Diggers & doz. \$40.00dis 25&10 %  |
| E.                                      | 8 Lee & Co.'s Pruner  |
| Ho<br>Ja<br>Bi                          | ot House and Tackie dis todito Sup'd Screw dis todito Sup'd Screw dis todito Sup'd Screw dis todito Sup'd Screw   |
| H                                       | p'd Side. dis coard > Clothes Line. dis coard > Sy Fork Solid Eye, \$4.50; Swivel. \$5.00, dis soards of "Anti-Friction," solid soard > Clothes Line & Clothes &  |
| - 63                                    | MILE ACROMAGORA ALGORAGO  |
| Be                                      | Punches.  It or Drive   |

Barn.

Ba

anges

lis 40 % lis 40 % lis 60 % lis 10 %

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18 35 %

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20 % 20 %

| Rall.<br>Barn Door   |   |  |  |   |  |  |
|--|---|--|--|---|--|--|
| Barn Door  | g Door W  | rought ron, Pair   | Brass  | W B   | 420 dis 20   | 2 6  |
| н  | Per ro  | o feet. &  | 1.00 3   | 80 5  | 60-dis 10  | D D  |
| Per 100<br>Razeri<br>J. R. Torre   | feet  | 82.10  | 1. 1   | .70   | Large.<br>3.30—ne  | R S  |
| R. Torre   | Straps.<br>Emerson.   |  |  |   | dis scars  | B  |
| Badger's I<br>Badger's (   | not Emer  | nom)   | *********  | ******  | dis 40   | S D  |
| mitation<br>vant's.  | Emerson   |  | 1  | dos 8   | .dls 40%50dis 40dis 25dis 40 200.dis 20dis 4085 dis 15 @ 20dis 20  | BR   |
| orrev's  |   |  |  | ******  | dis 10   | BT   |
| on and I   | inned<br>st of May  | 21   | ********   |   | dis 50   | RHH  |
| Nos  | 98 500 52<br>on Belt R  | c 540<br>ivets and   | 11 12<br>16e 58e   | 13<br>600   | dis 50<br>dis 30<br>dis 35<br>14 15<br>65¢ 700<br>dis3c  | GOT  |
| Triver o   |   | *******  | ***** *  | ** .***   | 40   | BIT  |
| Reller   |   |  |  |   | '79, dis 20  |  |
| arn Door   | r. Sargent  | 's list  |  | ********  | dis 55&10<br>dis 10<br>dis 50  | S B  |
|  |   |  |  |   | ept. 20, 186<br>er W B 13<br>ch W B 13<br>ch W B 14<br>W B 12  |  |
| Ta   | r'd kope.   |  | % and  | 5-16 Inc  | ch 7 10 135  | C T  |
| isal   | y Rope  |  | 6 inch a   | nd larg   | 01 % h 10 10 10 10 10 11 | C I  |
| " Hay  | Rope  |  | ¼ and  | 5-16 in   | ch # D 111   |  |
| Rules.<br>hapin's.<br>tandard  |   |  | Boxw<br>dis 6:   | &10 %   | dis soltio   | % E  |
|  |   |  |  |   | j  | l i  |
| eif Heat   | Tailors   | 4 7000   |  | ₩ c   | 9 3%0 n<br>for 80.50 n<br>or \$18.00 n   | et e   |
| irs. Pott  | 's Pat. Col   | d Handl  | e, "Cre  | wn"   | dis 30   | × 1  |
| Mand I   | aper.   | 's Flint,  | 00 to 116.   | -84-75  | P ream )   | *  |
| 66   | 66  | Star   | Assorte  | 4.75  | P ream   | ile 7  |
| torteles l   | Plint, sam  | e list as  | B & A.   | m #0.50   | @ 11.40   21   dis. 2   dis. 20@2  | 5% 8   |
| age's  | land  |  | ********   |   | CLIB 2000  | '*   3   |
| common.  | ke. Russis  | Flax   |  | W B   | 14 @ 200 E<br>% B 190 E<br>6 % dis 10<br>6 60 dis 10<br>650 dis 10   | et l   |
| Raw Hide   | Drab (  | cotton   | ******   | 4 3   | 650. dis 10<br>650. dis 10<br>dis 20   | *  |
| Bash A   | ocks.   | o; No. 2,  | \$8.00 per   | gross.  | dis 335  | 58 1   |
|  |   |  |  |   |  |  |
| Northup  | et, Clark   | & Smith  | Plain Ja<br>Knob Ja  | p'd. W g  | dis 20<br>gross.dis 11<br>gro \$10.09 E<br>Gro 14.00 E   | 5% E   |
| Bash .   | A GIEBTE  | -sond  | my co, III   | 200 m Tr  | 20 A -8/A T  |  |
| Maung<br>Miles   | e Sutfle  | F doz.   | No. 15:  | No. o.  | \$20, dis 30<br>\$21, dis 30<br>30.00, dis 20<br>dis 20<br>dis 2   | X 1  |
| raw Cui  | No. 4<br>e Mfg. Co  |  |  | each \$   | 30.00, dis 20<br>dis 20  | 0 % I  |
| MAN WELL   |   |  |  |   |  | 1 2  |
| 64   | Cross Cui   | nel. Rip,  | &e   | aw Hee  | dis 20   | 3 3  |
| oynton'  | One-Man<br>Billet We  | ali leng   | ths,   | ar.   | dis 20   | × 1  |
| Wheeler  | Lightnin<br>& Ciemso  | g Hand,<br>n Mfg. C<br>Cross-On  | Panel as<br>o.'s Han<br>ts, exce   | nd Rip.   | dis 20   | 7  |
| Livingsto  | n's Butch   | er and K   | Ad allegan   |   | - Acc  | - 10   |
| Nos  | 101   | ed Mood  | 103  | 104   | 105  | *  |
| Nos<br>Per de<br>Maw K   | rames.  | 8.40<br>8.40   | 103  | 104<br>7.50   | dis 3:     dis 3:     dis 3:     dis 2:     dis 3:   | 4 4  |
| White, Vo  | shed and  | Varnish  | d  | # don a   | 12.95, dis 29<br>12.00, dis 29   | S 5  |
| White, Vo  | shed and  | Varnish  | d  | # don a   | 12.95, dis 29<br>12.00, dis 29   | S 5  |
| White, Vo  | shed and  | Varnish  | d  | # don a   | 12.95, dis 29<br>12.00, dis 29   | S 5  |
| White, Vo  | shed and  | Varnish  | d  | # don a   | 12.95, dis 29<br>12.00, dis 29   | S 5  |
| White, Vo  | shed and  | Varnish  | d  | # don a   | 12.95, dis 29<br>12.00, dis 29   | S 5  |
| White, V. Red. Political Saw Body Saw S Brynton' per dos Stillman' Common Leach's Rammer, Bemis & G Alken's G Hart's Pa  | ermontshed and sets. Stoco Stoco Stoco Genuine Imitatio Lever Hotchkis Bemis & Call Co.'s enuine tont Leve  | Varnishe  K Cut, pe  in Ro. o Ro. o Ro. t  Cate Co. Lever & Plate  Cross Cu  | ed   | # doz 3<br># doz 3<br>\$20 list<br>12.00; I<br>\$3.50@4<br>0 £ \$2.00<br>NO. 2, 8<br>Pat<br>1amme   | B1.95, dis 25 22.00, dis 25 24 dis, ro3:10 Hand Saw, dis 20 85, 50 dis 70 25, 50, dis 30 25, 50, dis 30 25, 50, dis 20 25, 50, | AND REPRESENTATIONS  |
| White, V. Red. Political Saw Rodi Saw Bo Poynton' per dos Stillman' Common Leach's Rammer, Bemis & G Alken's G Hart's Pa   | ermontshed and sets. Stoco Stoco Stoco Genuine Imitatio Lever Hotchkis Bemis & Call Co.'s enuine tont Leve  | Varnishe  K Cut, pe  in Ro. o Ro. o Ro. t  Cate Co. Lever & Plate  Cross Cu  | ed   | # doz 3<br># doz 3<br>\$20 list<br>12.00; I<br>\$3.50@4<br>0 £ \$2.00<br>NO. 2, 8<br>Pat<br>1amme   | B1.95, dis 25 22.00, dis 25 24 dis, ro3:10 Hand Saw, dis 20 85, 50 dis 70 25, 50, dis 30 25, 50, dis 30 25, 50, dis 20 25, 50, | AND REPRESENTATIONS  |
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|                | ### ##################################   | 1   |
|                | Speke Mhayes. dis 20k10 \$ Defiance Metallic dis 20k10 \$  |     |
|                | Kron. die 45 %<br>Wood. die 30 %<br>Railev #Stanlev R & L. Co.) new list. die 20 % 75 %  | ı   |
|                | Spoke Trimmers.  Spoke Trimmers.  P dog \$10.00 dis 40\$5 \$   | ı   |
| *              | Stearn's   | ı   |
| ***            | Spoons. Basting. dis 45 S Riveted Table and Tea  |     |
| *              | Solid Table and Tea  | ı   |
| ***            | Reeq & Barton  | ı   |
| *              | German Silver.   dis 25:6210 %   Cast Steel, Sil. Plated   dis 321/5 %   Tin (P. S. & W.), Poss   dis 25 g gross, not  | ı   |
| 2              | Douglass   |     |
| %              | "Lighting " Screw Platedis 10 %  |     |
| 8 8            | Hindostan Hacker Stone   |     |
| 000            | " Slips  |     |
| 0000           | Turkey Oil Stone (Chase)   | Ė   |
| 000            | Grindstones, Family, Loring'sdis 10% 5 Stove Polish,   | 1   |
| (c             | Joseph Dixon's   | 1   |
| *              | Stove Folish   |     |
| et             |  | 1   |
| 200            | Steel  | H   |
| Si M           | Winches, Brads, &cc.   |     |
| ie<br>@        | List of April 2, 1880 Tinned Swedes Tacks  | B   |
| 5%             | Swedes Tacks, all kinds  |     |
| *              | Gimp and Lace Tacks. dis 20 5 6 Finishing Nails. dis 15 5 6 Trunk and Clout Nails. dis 15 5 6  |     |
| et<br>et<br>%  | Common and Patent Brads dis 10 % Busket Nails dis 13 % Brush Tacks dis 10 %  | NS  |
| MMMM           | Leathered Carpet Tacks   | NS  |
| 68             | Tacks, Grads, &cc.     List of April 2, 1860     Tined Swedes Tacks.   dis 36 g     Tinned American   dis 4 g     Swedes Tacks, all kinds   dis 30 g     Copper Tacks and Nails   dis 30 g     Copper Tacks and Sample 2 g     Copper Tacks and Sample 3 g     Copper Tacks   dis 10 g     Copper Tacks   dis 20 g     Copper Tack List goods   dis 20 g     Copper Tacks   dis 40 g     Copper Tacks   dis    | S   |
| St St          |  | 6   |
| et<br>et       | Tapes, Measuring.  | Ola |
| et             |  | 1   |
| **             | Tin Case   |     |
| 5%             | Enterprise Mfg. Co. (Champion). dia 20 % Wood Bottom . \$\psi\$ doz \$12.00, dia 30 % Wood Bottom . \$\psi\$ doz \$52.00, dia 40 % Afi Iron . \$\psi\$ doz \$9.0, dia 40 % S Nashua Lock Co.'s . \$\psi\$ doz \$10.00, dia 50 @55 %  | 1   |
| * 9 %          | Toe CalksWinsted W m oc. dis s   |     |
| MANAMAN        | Tinners' Tools and Machines.  Machines (P. f. & W.)list add 20 % Tools (P. S. & W.)add 6 %   |     |
| REEN           | Transom Lifters. Wollensak's Patentdis 35 %  | Г   |
| 1              | Game. Newhousedis 90 %  " Newhouse Paşterndis 90 % 55 %  |     |
| t              | Game. Newhouse   |     |
| KKM            | a. Catch-em-alive \$\vec{\psi}\$ dos \$2.50, dis 10 \$\vec{\psi}\$ Rat. "Decov" per dos \$10.00, dis 10 \$\vec{\psi}\$   |     |
| 2              | Trewels.  Lotbrops Brick and Plastering  |     |
| MMM            | Peace's Plastering   |     |
| MHEMMANNE      | Lothrope Brick and Plastering  |     |
| MANA           | Priters.   |     |
| MMM            | V  |     |
| M 40           | Parallel, Parker's   | ,   |
| MAN.           | ** Merrill's   |     |
| ***            | Backus and Union   dis 40 \$<br>  Oval Slide   dis 40 \$<br>  Double Screw Leg   dis 152 16 1  | -   |
| ***            | Stevens dis 20 5 Simpson's Adjustable dis 20 5 'kam'ly "List net   |     |
| *              | Saw Filers, Bonney's   |     |
| MMMM           | Richardson's Vise and Anvildis 26 5  |     |
| 200            | Washer Cutters   |     |
| * % %          | Washers.—See Nuts and Washers.   |     |
| M 24 M         | Wire. Brass and Copper List of June 10, 1880 dis 20 5  | 14  |
| W W.B          | Wire- Brass and Copper List of June 10. 1880 dis 20 % Bright and Annealed Nos. 0 @ 18. dis 475 @ \$22 %  "Nos. 19 @ 20. dis 3,5 @ 50 %  "Nos. 27 de 3,6 dis 52 % @ 6; %  Coppered Nos. 0 @ 18. dis 42 % @ 47 %  Consider an anneal and anneal and anneal and anneal and anneal and anneal ann            |     |
| XX             | Condered   |     |
| 1              | Tinned. Nos. 6 to 18   | -   |
| 5 5            | Grane, Nos. 10 to 14. dis 47% (6 (2) 8 Galvanized Telegraph, Nos. 7 to 9   | S   |
| % % %<br>% % % | # No. 12   | _   |
| 2 22           | Study Steel Wife. \$7.00 to £ Japanned Barb Fence. # # gc Galvanized " # b cc  |     |
| Ken            | Tinned. Nos. o to 18.  Cast Steel  | P   |
| 200            | Wire Cloth, greenand drab  | BI  |
| 6              | Baxter's Adjustable - 8,"list Jan., 1850, dis 25   |     |
| 200            | "Mechanics"  |     |
|                | Girard Agi   |     |
| 1000           | Briggs' Pattern  |     |
| 1              | Wrenches   |     |
|                | The Favorite Pocket (Bright). per dos \$8, dis o 5 Webster's Pat. Combination dis 2; \$ Webster's Pat. Combination dis 2; \$ Wringors. Per dox. Universal, XX No. 236  |     |
|                | 77.00 NO. 1. 93.00 NO. 8. 88.00, 12.00 NO. 12.   |     |
| 1              | " No. 18. " 25.00 25.00 No. 22. " 32.00 No. 22 |     |
| 1              | No. 2, with Cogs   | * : |
| 1              | 4 No. 2, 4 50,00 14 No. 3, 4 77.00 18,00 1   | Pa  |

| $\mathbf{T}_{\mathrm{M}}$  | E                |
|--|------------------|
| Bintes.  |                  |
| States   Square Framer   Squ                 |                  |
| Railov   |                  |
| No. 1, \$15.00; No. 2, \$11.00 % dos. dis 50% to 50 Douglass   |                  |
| Douglass   |                  |
| Cast steel, Sil. Plated dis 32½ \$ Tin (Y. S. & W.), Peas \$1.55 \$ gross. net Tin (Cowles Edw. Co.) dis 10.5 tin Cowles and Dies dis 5.5 to \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$   |                  |
| Lightning "Screw Plate.   dis 10 \( \)   Stone   |                  |
| "Lightning" Screw Plate. dis 10 %  Stene.  Hindostan Hacker Stone. \$\psi\$ gross \$12.00 dis 10 \$ Sond Stone. \$\psi\$ 6c dis 33\frac{1}{2}\frac{1}{2}\text{to}\$ dis 10 \$ Sond Stone. \$\psi\$ 6c dis 33\frac{1}{2}\frac{1}{2}\text{to}\$ dis 10 \$ Sond Stone. \$\psi\$ 6c dis 33\frac{1}{2}\frac{1}{2}\text{to}\$ dis 10 \$ Sond Stone. \$\psi\$ 6c dis 33\frac{1}{2}\frac{1}{2}\text{to}\$ of 10 \$ No 1, \$\psi\$ 10 \$ Sond Stone. \$\psi\$ 0.2, \$\psi\$ 10 \$ No 1, \$\psi\$ 10 \$ Sond Stone. \$\psi\$ 10 \$ Sond Sond Sond Sond Sond Sond Sond Sond  | 0                |
| Grindstones. Éamily, Loring's  | 2                |
| Ruby #gross \$3.74 net Rising Sun #gross \$5.75, net Dixon's Plumbage. #gross \$5.75, net Squares.  Squares. dis 50 \$; full cases, dis solt of \$1.25  Reconstruction of the solution of \$1.25  Steel dis 50 \$; full cases, dis solution \$1.25  Reconstruction of the solution of the solution of \$1.25  Reconstruction of the solution of the soluti | P                |
| Squares.  Steel  | Re               |
| List of April 2, 1880 Tinned Swedes Tacks  | BL               |
| Gimp and Lace Tacks.   dis 0   | Nu<br>Sci        |
| Tacks, Brads, &c. List of April 2, 1880 Tinned Swedes Tacks. dis 35 5 Tinned American dis 25 5 Tinned American dis 25 5 Toned                | Ma<br>Shi<br>Scr |
| Ives' Tap Borers. dis 14670 5 Enterprise Mfs. Co. dis 20 5 Tapes. Measuring.   | Ove              |
| American dis 20 % Spring Tapes dis 25 % Ois 25 %               | 13               |
| Enterprise Mfg. Co. (Champion)   | -                |
| Tinners' Tools and Machines. Machines (P. A. W.)   |                  |
| Traps.   |                  |
| Game. Newhouse   | 7.0              |
| Treweis.         dis 20 %           Lothrops Brick and Plastering.         dis 15 %           Reed's Brick and Plastering.         dis 15 %           Disston's Brick and Plastering.         dis 20 %           Peace's Plastering.         dis 90 %           Clement & Maynard's         dis 20 %           Rose's Brick         dis 15 %           Brades' Brick         dis 15 %           Worrall's Brick and Plastering         dis 20 %           Garden         dis 45 %  |                  |
| Triers.  | 0                |
| Vises. List, of July 1, '79 dis 25 5   |                  |
|  |                  |
| Oval Side  |                  |
| Stearn's dis socio 5 Hopkins P dos \$17.50 dis 10 5 Lowell Hand Visco dis 20 5 Richardson's Vise and Apvil dis 25 5 Washer Cutters. Smith's Patent P dos \$17.00 dis 15 5  |                  |
| Washer Cutters.  | Or.              |
| Wire.<br>Brass and Copper List of June 10, 1880,dis 20 ¶<br>Bright and Annealed Nos. 0 @ 18. dis 47 ½ @ 52½ ≤  |                  |
| Brass and Copper List of June 10, 1880 dis 20 % Bright and Annealed Nos. 0 @ 18. dis 47½ @ 62½ 5 Nos. 10 @ 20. dis 5 @ 60 % Nos. 20 @ 20. dis 5 @ 60 % Nos. 20 @ 20. dis 5 @ 60 % Nos. 20 @ 20. dis 42½ @ 61½ & 61½  |                  |
| Tinned Broom Wire, Nos. 18 to 24.  | S.               |
| Nos. 10 and 11.   # B 10c  | Pl               |
| rindo's Picture Wire   | Bloc             |
| Diagonal   dia 26     Ose 'Genuine   dia 5   |                  |
| Wrenches. Imerican Adjustable  |                  |
| The Favorite Pocket (Bright)   |                  |
| Wringers.         Per dos.           Diversal, XX No. 2½         .850.00           "" No. 2         .63.00           "" No. 1½         .77.00           "" No. 1½         .93.00           "" No. 8         .8668, 12.00           "" No. 12         .20.00           "" No. 18         " 25.00           "" No. 18         " 25.00           "" No. 2.         32.00           "eerless, No. 0, no Cogs         51.00   | 1                |
| 14 No. 0, 110 COES 51.00   |                  |

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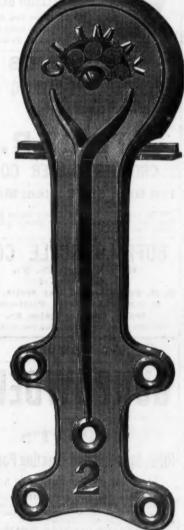
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ck's Tin Spout Strainer & Patent O. K. Grater.



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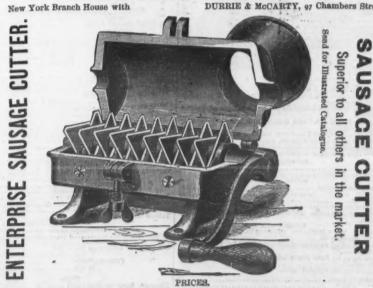


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Jar K Doul of the

KI

# NEW YORK WHOLESALE PRICES, December 29, 1880.

|   | 2  |
|---|--|
| METALS.   | WI TO  |
|   | 43   |
| RON.—Dutt: Bars, t to 1560. W b; Sheet, B<br>Hoop and Scroll. 154 to 1560. W b; provided, that a<br>et a ha above iron shall pay a less rate of duty has<br>per cent. Pig. W v ton; Polished Sheet, so. Wrought Scrap, 80 per<br>Railroad. so. W 100 Bs. Boller and Plate, 1560. W  | one 13<br>in 35 15   |
| wrought Scrap, \$8 \( \pi\$ ton; Polished Sneet, \$c. \( \pi\$ \) Wrought Scrap, \$8 \( \pi\$ ton; Cast Scrap, \$6 \) Baliroad, \$cc. \( \pi\$ too \$8\$. Boiler and Plate, \$460. \( \pi\$ )   | 18 30  |
| I POR-AMERICAN  | N Y  |
| Foundry No. 1   | 1,00 R   |
| Carnbroe \$ ton 21.50   | Be   |
| Coltness  | 3.00   |
| Dette   | Pitt   |
| Iron  | 2,50<br>B.00   |
| Serap.<br>Wrought Scrap # ton   | 11   |
| Gar Iron, from Store. —<br>Common Iron;<br>% to tin. round and square   | Gerr   |
| Refined Iron  **W to 2 in, round and square   | Bhes   |
| 1 to 0 m. 3% to 1 in.  Refined iron  % to 2 in. round and square.  1 to 6 in. 3% to 1 in.  1 to 6 in. 3% and 5-to.  Rods—6 and 1-to round and square.  Bands—1 to 6xx-10 to No. 12.  What  Bands—1 to 6xx-10 to No. 12.  What  Bands—1 to 6xx-10 to No. 12.   | .70  |
| Bands—r to 6 x3-16 to No. 12  | IC LE  |
| Common R. G.  | Ame  |
| Os. 10 to 20  | n. Pipe  |
| OS. 10 tO 20  | Shoe<br>Shoe<br>Chill  |
| Balvanised, to to so W % Sc   | 70   14. 4.  |
| ar to oh W 9 alea 81  | TIN.   |
| Patent Planished * > 120: R. 10   |  |
| American Cola Rolled  |  |
| OPPER.—Dury Pig, Bar and Ingo t, 10; OldCo<br>per 4c h. W Manufactured (including all article<br>which Copper is a component of chief value), 45 %  | of IC to   |
| American Ingot B Bee Trade Repor  | t. IC 12   |
| Braziers' Copper, ordinary sizes, 150z. per sq.<br>ft., and over per lb   | le DC ii   |
| Braziers Copper, Ordinary sizes, under 10 Ca.  and over 12 OS. P sq. ft   | oc DX I  |
| Circles less than \$4 is. n diameter \$\text{\psi}\$ is \$\text{\psi}\$ in diameter and over \$\text{\psi}\$ is \$\text{\psi}\$ in \$\text{\psi}\$ is \$\text{\psi}\$ in \$\text{\psi}\$ in \$\text{\psi}\$ in \$\text{\psi}\$ is \$\text{\psi}\$ in | I C In   |
| fegment and Pattern Sheets  | 1 C 14<br>10 I C 14<br>10 I C 12   |
| Boit Copper   | ie IC 14   |
| BHEATHING, BRASHERS COFFER. SOLTS, &c.  Brasilers' Copper, ordinary sizes, 1502. per sq. ft., and over por lb. Brasilers' Copper, ordinary sizes, under 16 02. and over 10 02. \$\psi \text{ sq. ft. }\psi \text{ sq. ft. }\   | IX 141   |
| All other size Sheets, 1540, per square foot. For tinning both sides, double the above amount. O'REILL'S PATENT PLANISHED COPPER.—Not.  | I C 201  |
| O'REILL'S PATENT PLANISHED COPPER.—Not.  and it os. and heavier. F h 36s By the case. W h 36 os. and lighter 390 " " F h 38   | 801.   |
| Holler Sizes.   |  |
| os. and lighter   | Berger<br>Lehiar<br>ZINC   |
| 4 and 6 or, and heavier # B 40  | Sheet,   |
| Brass.  Brass.  Brass.  Group & Sharp's Gauge the Standard for Metal; Ol  | 4  |
| Brans.  Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.  English Gauge the Standard for Metal; Old English Gauge the   |  |
| Jame 10, 1880.  Cash prices for Roll and Sheet Brass. For less quantity than 100 Bs. add 30 ₩ B.  HIGH BRASS.   |  |
| All Nos. not thinner than to No. 28, wider than 2 in.,  |  |
| All Nos. to No. 28, inclusive, and widths over 14 to  |  |
| All Was to Wo as inclusive and widths over so to  | White  |
| All Nos. to No. 28, inclusive, and widths over 20 to 50 in, inclusive.  14c. # 25 advance on each No. above Nos. 28 to 28, in.  | White<br>Mill As<br>Unbles<br>City W   |
| tity than no 5s. add 30 % 5s.  All Nos. not thinner than to No. 38, wider than 3 in., not wider than 1,1 is.  All Nos. to No. 36, inclusive, and widths over 14 to 25 in., inclusive, All Nos. to No. 36, inclusive, and widths over 25 to 25 in., inclusive.  (c. # 5s advance on each No. above Nos. 25 to 36, inclusive.  All Brass thinner than No. 8 is Platers' Brass, at., 19, Sheets 24x48, and all sheets cut to particular signs  | Mill As Unbies City W New Co New Sc  |
| All Brass thinner than No. 2 is Platers' Brass. at os<br>Sheets 2448, and all sheets cut to particular sizes<br>and lengths under 30 in., in width wider than 2 in. 370   | No. 2, 1   |
| All Brass thinner than No. 2 is Platers' Brass. at  | No. 2, V<br>Cotton<br>Linen  |
| All Brass thinner than No. 2 is Platers' Brass. at  | No. 2, Vo. 2, Vo |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 80 No. 2, 7 Cotton Linen 6 Second Colors, Manile Gunny   |
| All Brass thinner than No. 2 is Platers' Brass. at  | No. 3, Cotton Linen of Second Colors, Manlia Gunny Kentuc  |
| All Brass thinner than No. 2 is Platers' Brass. at  | No. 3, Cotton Linen of Second Colors, Manlia Gunny Kentuc  |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 80 No. 2, 7 Cotton Linen of Second Colors, Manlis Gunny Kentuc Buriap Harmy Harm Work Wwite Mixed  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 86 No. 2, 1 Cotton Cotton Linea Becond Colors, Manlis Gunny Kentuc Burlap Tar Sh Hemp Hard White Mixed Ledger Book S Old New Pure M  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 86 No. 2, 1 Cotton Cotton Linea de Becond Colors, Manlis Gunny Kentuc Burlap Tar Sh Hemp Hard V White Mixed de Model Hook Si Cold New Pure M Bogus 1 Course  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 Cotton Linen Second Colors, Manlis Gunny Kentuc Burlap Tar Sh Harn V White Mixed Ledger Soild 8: Book Si Old Nan Pure M Bogus Bogus  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 Cotton Linen Colors, Manlis Gunny Kentuc Burlap Tar Sh Hemp Hard V White Ledger Solid Si dook Si Old New Pure M Bogus Commo  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 Cotton Linen Colors, Manlis Gunny Kentuc Burlap Tar Sh Hemp Hard V White Ledger Solid Si dook Si Old New Pure M Bogus Commo  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 Cotton Linen Colors, Manlis Gunny Kentuc Burlap Tar Sh Hemp Hard V White Ledger Solid Si dook Si Old New Pure M Bogus Commo  |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 No. 2, 2 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 No. 2, 2 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8. No. 2, 1 No. 2, 2 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 1 No. 2, 2 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8 No. 2, 7 No. 2, 7 No. 2, 7 Otton Linea con 1 Linea con 2 Second Colors, Mania Gunny Kentuc Burlaph Hard V White con 1 Lidger Solid Si Book Si Old New 1 Commo Hinder Straw I  Black L  Hack P Hine Pr Blue Pr Blue Pr Blue Pr Blue Pr Blue Carming Carmi |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8. No. 2, 7 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8. No. 2, 7 No. 2 |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8: No. 2, 1 No. 2, 1 Cotton Linea : Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Herny H |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8. No. 2, 7 Cotton Cotton Linea a Second Golors, Manile Golors, Manile Gunny Kentuc Becond Colors, Manile Gunny Kentuc Burlap Tar Sh Hard V White Ledger Solt Hook Si Cold New Hook Si Cold N |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8. No. 2, 7 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Berand Colors, Manile Gunny Kentuc Burlap Tar Sh Hamp Tar Sh Hamp Tar Sh Hamp Tar Sh Hemp |
| All Brass thinner than No. 2 is Platers' Brass. at  | New 8: No. 2, 7 No. 2, 7 No. 2, 7 Ootton Linen con con con con con con con con con co  |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8. No. 2, 7. Cotton Cotton Linea a Second Golors, Manile Golors, Manile Gunny Kentuc Becond Colors, Manile Gunny Kentuc Burlap Tar Sh Hard V White Ledger Solt Hard V White Ledger Solt Hard Hard Hard V White Ledger Solt Hard Hard Hard Hard Hard Hard Hard Hard   |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8. No. 2, 7. Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Becond Colors, Manile Gunny Kentuc Burlapp Tar Sh Hemp Hard Wohite Ledger Solid Bildook Si Common Binder Straw I Black L Black Pi Blue Ph Bl |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8 No. 2, 7 No. 2, 7 No. 2, 7 Cotton Linea a Second Golors, Manila Golors, Manila Gunny Kentuc Second Golors, Manila Gunny Kentuc Second Gunny Hard Wahite Ledger Solid Na Lodger Solid Na Lodger Solid Na Hack L Hack L  H |
| All Brass thinner than No. 2 is Platers' Brass. at and sheets axx4. and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in. 37 Printers' Rules.  Sheets wider than 30 in. and under 40 in 40 in. and over.  Circular Sheets, in diam. from 4 in. to 14, inclusive. 20 in 40 in. and over.  Circular Sheets, in diam. from 4 in. to 14, inclusive. 20 in 40 in. and over.  Low Brass.  4c \$ B\$ more than High Brass.  Gliding Metal, 8c \$ B\$ more than High Brass.  Gliding Metal, 8c \$ B\$ more than High Brass.  Gliding Metal, 8c \$ B\$ more than High Brass.  Gliding Metal, 8c \$ B\$ more than High Brass.  Gliding Metal, 8c \$ B\$ more than High Brass.  In Bars.  \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$  | Now 8 No. 2, 1 No. 2, 1 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Second Colors, Mixed Ledger Sidook Sidoo |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8 No. 2, 1 No. 2, 1 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Second Colors, Mixed Ledger Sidook Sidoo |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8 No. 2, 1 No. 2, 1 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Hard Wahite Lledger Sidook Si Cod Nav Pure M Bogus I Commo Bidock I I I I I I I I I I I I I I I I I I I   |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now 8 No. 2, 1 No. 2, 1 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Second Colors, Mixed Ledger Sidook Sidoo |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now & No. 2, 1 No. 2, 1 Cotton Cotors, Mania Gunny Kentuc Becond Colors, Mania Gunny Hard Wafte Ledger Straw Ledger Straw I Black L I Hack |
| All Brass thinner than No. 2 is Platers' Brass. at. 198 Sheets axx4. And all sheets cut to particular sizes and lengths under 20 in., in width wider than 2 in. 198 Sheets wider than 30 in. and under 20 in. 198 Sheets wider than 30 in. and under 20 in. 198 Sheets wider than 30 in. and over.  Circular Sheets, in diam. from 4 in. 50 it, inclusive. 20 in. 20 in  | Now & No. 2, 7 No. 2, 7 Cotton Cotton Linea a Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Kentuc Second Colors, Manile Gunny Hard White Lledger Straw Lledger Sidook Si Cod New Pure M Bogus Lodger Straw I Black L I Hack I  |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now & No. 2, 7 Cotton C |
| All Brass thinner than No. 2 is Platers' Brass. at  | Now & No. 2, 1 No. 2, 1 Cotton Cotions, 1 Second Colors, Mantia Gunny Kentuc Becond Colors, Mantia Gunny Kentuc Burlapp Tar Sh, Hamp Hard W White ! No. 2, 1 Second Colors, Mantia Lidger Solid \$\frac{1}{2}\$! Lodger Straw I  Blue Pri Blue Pri Blue Pri Blue Pri Blue Pri Blue Rose Pli Blenna.  """ White, I' White, I' White, I' Vermill """ """ Vermill """ Vermill """ "" "" "" "" "" "" "" "" "" "" ""   |
| All Brass thinner than No. 2 is Flaters' Brass. at  | Now & No. 2, 1 No. 2, 1 Cotton Cotton Linea a Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Hard White Lledger Straw I Black L I Hack I Hac |
| All Brass thinner than No. 2 is Flaters' Brass. 4   | Now & No. 2, 1 No. 2, 1 Cotton Cotton Linea & Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Hard White Lledger Straw Lledger Straw I Black L I Hack I Hac |
| All Brass thinner than No. 2 is Flaters' Brass. 4   | Now & No. 2, 1 No. 2, 1 Cotton Cotions, 1 Second Colors, Mantis Becond Colors, Mantis Gunny Kentuc Becond Colors, Mantis Gunny Kentuc Burlap Tar Sh Hard V White I Ledger Solid Si Lodd No Pure M Bogus I Commo Binder Straw I  Blue Pr Blue Pr Blue Pr Blue Pr Blue Ch Carmin Green, Carmin Green, Carmin Green, Carmin Green, Vernilli White, I White, I White, I White, I White, I Vernilli White, I Vernilli Called Colors  Wellow C Sinc Wh  Linseed, Bleached Signal Prine Li No. 1 Carmin Green, Carm |
| All Brass thinner than No. 2 is Flaters' Brass. 4. 49 Sheets arays, and all sheets cut to particular sizes and lengths under so in., in width wider than 2 in. 37 Sheets wider than 30 in. and under so in  | Now & No. 2, 1 No. 2, 1 Cotton Cotton Linea & Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Kentuc Second Colors, Manili Gunny Hard White Lledger Straw Lledger Straw I Black L I Hack I Hac |

| LEO  | ALE PRIVES, DE   |
|--|--|
| 1 Per o  | GERMAN SILVER TURING.—dls 10 \$  |
| 9 "  |  |
| 15 "   | 1.3  |
| 18 4   |  |
| STEEL  | DUTY: Bars, Ingots, Sheets and Cous<br>at 7 cents \( \mathbb{B} \) , or under, 2414 cents; over, 7   |
| W B. s   | nd not above 11, 3 cents W B; over 11, 314 cents d to % ad val. Railway Bars, 114 cents W B.   |
| that M<br>Bessen   | —DUTY: Bars, Ingots, Sheets and Coils at 7 cents \$\vert \textbf{m}\$, or under, 44\(\) cents \$\vert \textbf{m}\$, or under, 44\(\) cents; \(\vert \text{ore} \text{ore} \text{ore}, 7 \text{ore} \text{ore}, 7 \text{ore} \tex   |
| 1 2  | American Unst Steel.   |
|  | rican Steel see quotations under heading of  |
|  | Best Cast Basic Ba   |
| 44   | Bound Machinery, Cast 100 B too Best Double Shear  |
| German   | Blister, 1st quality B 130   |
| Sheet Car  | ad quality   |
|  | adquality. \$\psi\$ 50 95 95 95 95 95 95 95 95 95 95 95 95 95  |
| ANTI   | ONY See Trade Report<br>DUTY Pig \$1 \$ 100 Ds : old Lead, 1360 D \$1<br>Sheet, 2560 \$1 D.  |
| American   | **************************************   |
| Pipe<br>Tin Lines  | Pipe   |
| Shoet<br>Shoe  | Co Rec<br>  Co Rec<br>  Sec   Co Rec<br>  Sec   Co Rec<br>  Co Rec |
|  | BARRETT METAL  |
|  | 300 ; C, 150.  |
| B; Elect   | T: Fiates, Sheets, Tagger and Terne, 1.10 W<br>-galvanised Plates, 20 W B; Manufactures<br>umerated, 25 per cent. ad. val. Bars, Block<br>free. Banca, subject to duty of 10 per cent.   |
| E-manous   | 1000 to 1000 t   |
| English .  | TIN PLATES,  |
| I C 10X14 }  | rime Charcoal  |
| I C 13X12<br>I X 10X14 }                                 | Charceal8.25   |
| D C 1216XI   | 8.57   |
| For each   | Charceal 8.25  8.25  8.25  8.25  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.27  8.25  .   |
|  | Best. Ordinary.  |
| I C 12X12  | TERRE PLATE  |
| I C 14X10  | Prime Char. ad onas. Coke.   |
| C 14X30<br>X 14X30<br>U 20X38                            | 7. 40<br>11.40 @ 12.03 11.0 @ 11.50 10.50 @ 11.00<br>14.50<br>12.00  |
| C 20X200.  | F. Brana 7 75 @ 8.00   |
| BOLDER   |  |
| loo Bs.<br>American.                                     | nah  |
| Lehign, on   | pot  |
| side W B.  | -Dutt: in Figs, rears and Plates, gr.co wash show the from Lehiga Ore  |
| Open   | 773 600  |
| P  | aper Stock, &c.  |
|  |  |
|  | (Dealers' Selling Price.)  |
| White Shir   | Cuttings, No. 1 6)4 6 6)4 8 6)   |
| nbicached  | Muslins 054 6 64   |
| ew Canto   | No. 1. 474 65 5<br>Flannels 6 6 6)4<br>s, light 494 66   |
| o. 2, White  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |
| inen Canveconds, Ci                                      | s, No. 1   |
| lanlia Ror   | 50 lbs 90 @ \$1.c0 S   |
| unny Bags  | ng, No. 1  |
| urlap Bags<br>ar Shaking                                 | gging 4% 6 2% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5%   |
| emp Twin   | Stock  |
| hite Shav  | ngs, No. 2, soft   |
| edger and<br>olid Stock.                                 | riting   |
| ld Newspa<br>ure Manila                                  | 0rs  |
| ogus hani<br>ommons<br>inders' Bos                       | d Cuttings 134 E   |
| raw Board  | (Dealers' Selling Price.)  Cuttings, No. 1. 646 654  4 Whites No. 2. 5 6 53  Muslins 0 54 6 54  No. 1. 45 6 554  No. 1. 45 6 554  No. 1. 45 6 554  As inght 45 6 554  as no. 1. 45 6 455  as no. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.  |
|  |  |
|  | aints, Oils, &c.   |
|  | Value  |
| ack Lamp.  | Coach Painters # B 200   |
| " Ivory  | rop, fair  |
| ack Paint,<br>ue Frussia                                 | n oil  |
| d Ultram   | dry  |
| wa, Span<br>Van I  | rke  |
| een, Chron   | in oil   |
| n Paint, B   | n oil  |
| " B  | own # b 14c ne   |
| **   | Red  |
|  | Purple W m &c   cle  |
| neral Pain   | Pig  |
| neral Pain<br>ange Miner<br>d Lead, Ar                   | erican   |
| neral Pain<br>ange Miner<br>d Lead, Ar<br>Er<br>Venetian | Palita.  Caach Painters  |

|                        | Lain                 | 13,     | Ulls, ac.  |
|------------------------|----------------------|---------|--|
|                        |                      | -       | _  |
|                        |                      | Pn      | Inte.  |
| Black Lan              | p. Coach             | Painte  | 78 W B 200   |
| " Ivor                 | ordina<br>y Drop, fa | dr      | **************************************   |
| Black Patn             | t, in oil            | еяв     | kegs 8c asst'd cans, ric   |
| Bide Pruse             | uan, mar t           | O Dest  | in oil   |
| Bine Chine             | marine               |         |  |
| Brown, Sp.             | anish                | ******  | JIke   |
| Carmine, a             | o                    |         |  |
| H Da                   | " in oil             | ******  |  |
| 44 4                   | in oil               | *****   | 300; 440   |
| tron Paint,            | Brown                | ed      | # B 2/4c # b 1/4c # b |
| 66                     | Purple               |         | 10 3c  |
| 41                     | Ground 1             | n Ou,   | Red W m 53gc   |
| 65                     | 46                   | 46      | Brown # B 45c  |
| Mineral De             | America.             |         | Purple b 6c  |
| Orange Mis             | noral                | ******  | 100  |
| Red Lead,              | American             | *****   |  |
| " Venet                | lan (N. C.)          | dry     | Br. 66 @ St. 20  |
| 66                     | in oil.              |         | asst'd cans, 110; kegs, 8c   |
| " Indian<br>Rose Pink. | dry                  | ******  |  |
| Bienna, An             | erican, it           | aw      | 4C   |
| 64 134                 | in oil.              |         | to @ 16 @ 200  |
| " Ra                   | W                    |         |  |
| Umber, Bn              | rnt                  | ******  | 4 @ 80   |
| " Ra                   | W                    |         | 316 @ 7160   |
| 61 61                  | in oil               |         |  |
| vermittion             |                      |         |  |
| 66                     | Trieste              |         | nmon.,   |
| Hithita T on           | America              | B, Cor  | nmonse   |
| A TITLE TOOK           | a, Almoric           | an, pu  | nmon. 14e re dry   |
| White, Par             | is, English          | i, priz | nein bbla. 2 @ 254C'   |
| Keriow Ock             | re, Frenc            | in of   | asst'd cans. me : kees se  |
| 46 66                  | Vermo                | nt      | in casks, rice   |
| Kellow Chi             | ome                  | ******  |  |
| Zinc White             | America              | n No.   | i, dry 5@ 516  |
| 66                     | French (             | Paris). | 17 6 270 17  |
|                        |                      |         |  |
| Anseed, R              | aw, in cas           | ks an   | in.  |
| Henched H              | oiled.               | 41      |  |
| meached W              | erm                  | ******  | 1 bblsgal.58e  |
| tignal                 | Llephant.            |         | 670  |
|                        |                      |         | 700  |

| 19m   | ndrice.  |  |  |                      |
|---|--|--|--|----------------------|
| Asphaltum   |  |  |  |                      |
| Bensine   | ********   |  |  | col :                |
| Chair   |  |  |  |                      |
| " Block   |  |  | *****  |                      |
| Dryer, Patent, Am'n   |  | t cans.  | 10160  | keg.                 |
| Block. Dryer, Patent, Am'n Frostings  |  |  |  |                      |
| Glue, White   |  |  |  | 33 @ 4               |
| " Sheet   | ********   | ******   |  | 2                    |
| Glaziers' Points, Zinc  |  |  |  |                      |
| trum, copar   |  |  |  | esee.                |
| Damar   | ********   | ******   | *******  | 2                    |
| " Bheilac, English  |  |  |  |                      |
| Litharge English  | Meccese  | *******  |  | ****                 |
| " Shellac, English da<br>Litharge. English Mineral Wool.<br>Pumic Stone, selected Lu  |  | ******   | B B Th   | 10.1                 |
| Pumic Stone, selected Lu-   | mps  |  |  | 40                   |
|   |  |  |  |                      |
| Putty, in bladders  | ********   |  | ******   | 3                    |
| " in bulk   |  |  | ******   | 25                   |
| Spirits Turpentme   | ********   | ******   | ******   | 47                   |
| Whiting Spanish   | *******  | ******   |  |                      |
| 431   | Les.   |  |  |                      |
|   |  |  |  |                      |
| FRENCH WI   | IDOM 61  | ASS.   |  |                      |
| Shefana annound   | 1111.5   |  |  |                      |
|   | man ham .  | of an for  | ad.  |                      |
| Prices current  | per box  | of 50 fee  | et.  |                      |
|   |  |  |  |                      |
| Single Thick.   |  |  |  |                      |
| Single Thick.—  | Discoun  | 45 to 4  | 10 %.  | 1 4th                |
| Single Thick.—  | Discount   | 45 to 9  | 9d.  | -                    |
| Single Thick  | Ist.   | 2d.  | 9d.  | -                    |
| Single Thick  | Ist.   | 2d.<br>8 5.75<br>6.75  | 9d.<br>8 5.50  | 8 5.0                |
| Single Thick.—  SIZES,  6 x 8 to 10 x 15,   | 1st.<br>8 6.50<br>7.25   | 2d.<br>8 5.75<br>0.75  | 9d.<br>8 5.50  | 8 5.0                |
| Single Thick.—  SIZES,  6 x 8 to 10 x 15,   | 1st.<br>8 6.50<br>7.25   | 2d.<br>8 5.75<br>0.75  | 9d.<br>8 5.50<br>6.25<br>7.75<br>8.25  | 8 5.0                |
| Single Thick.—  SIZES,  6 x 8 to 10 x 15,   | 1st.<br>8 6.50<br>7.25   | 2d.<br>8 5.75<br>0.75  | 9d.<br>\$ 5.50<br>6.35<br>7.75<br>8.35<br>9.00   | 8 5.0                |
| Single Thick. —  Sixes.  6 x 8 to 10 x 15   | 18t.<br>8 6.50<br>7.25<br>9.25<br>10.025<br>11.00  | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.25<br>10.00<br>10.75   | 9d.<br>\$ 5.50<br>6.35<br>7.75<br>8.25<br>9.00<br>9.50   | 8 5.0                |
| Single Thick. —  Sixes.  6 x 8 to 10 x 15   | 18t.<br>8 6.50<br>7.25<br>9.25<br>10.025<br>11.00  | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50  | 9d.<br>8 5.50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.50<br>20.50   | 8 5.0                |
| Single Thick. —  Sixes.  6 x 8 to 10 x 15   | 18t.<br>8 6.50<br>7.25<br>9.25<br>10.025<br>11.00  | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50<br>13.00   | 9d.<br>\$ 5.50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.50<br>20.50<br>11.25   | 8 5.0                |
| Single Thick. —  Sixes.  6 x 8 to 10 x 15   | 18t.<br>8 6.50<br>7.25<br>9.25<br>10.025<br>11.00  | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50<br>13.00<br>13.75  | 9d.<br>8 5.50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.50<br>20.50<br>11.25  | 8 5.0                |
| Single Thick. —  SIXES.  6 x 8 to 10 x 15.  1x x to 10 to 24.  18 x 22 to 20 x 30.  16 x 36 to 34 x 30.  16 x 36 to 30 x 44.  5 x 46 to 30 x 50.  10 x 36 to 34 x 50.  10 x 56 to 34 x 50.  10 x 56 to 34 x 50.  10 x 56 to 34 x 50.  | 18t.<br>8 6.50<br>7.25<br>9.25<br>11.05<br>11.75<br>13.25<br>14.00<br>15.00<br>15.00   | 2d.<br>\$ 5.75<br>6.73<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50<br>13.74<br>15.00  | 9d.<br>8 5.50<br>6.25<br>7.75<br>8.25<br>9.60<br>9.60<br>11.25<br>12.50<br>13.25   | 8 5.0                |
| Single Thick. —  SIZES.  6 x 8 to 10 x 15.  15 x 25 to 20 x 30.  15 x 25 to 20 x 30.  16 x 25 to 24 x 30.  16 x 26 to 34 x 36.  16 x 36 to 30 x 41.  16 x 46 to 30 x 42.  10 x 56 to 34 x 56.  10 x 56 to 34 x 56.  | 18t.<br>8 6.50<br>7.25<br>9.25<br>11.05<br>11.75<br>13.25<br>14.00<br>15.00<br>15.00   | 2d.<br>\$ 5.75<br>6.73<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50<br>13.74<br>15.00  | 9d.<br>8 5.50<br>6.25<br>7.75<br>8.25<br>9.60<br>9.60<br>11.25<br>12.50<br>13.25   | 8 5.0                |
| Single Thick. —  SIZES.  6 x 8 to 10 x 15.  15 x 25 to 20 x 30.  15 x 25 to 20 x 30.  16 x 25 to 24 x 30.  16 x 26 to 34 x 36.  16 x 36 to 30 x 41.  16 x 46 to 30 x 42.  10 x 56 to 34 x 56.  10 x 56 to 34 x 56.  | 18t,<br>8 6,50<br>7,25<br>9,25<br>11,04<br>13,25<br>14,00<br>15,00<br>15,00<br>17,50   | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.35<br>10.75<br>12.50<br>13.75<br>15.60<br>10.00  | 9d.<br>\$ 5,50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.00<br>11.25<br>12.50<br>13.25<br>14.00   | 8 5.0                |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15  | 184.<br>8 6.500<br>7.33<br>9.25<br>11.00<br>11.74<br>13.24<br>14.00<br>15.00<br>17.40<br>27.40   | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.25<br>10.00<br>10.75<br>12.50<br>13.00<br>13.00<br>15.00<br>15.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00<br>16.00     | 9d.<br>\$ 5,50<br>6.26<br>7.75<br>8.20<br>9.50<br>9.50<br>11.25<br>12.50<br>13.25<br>14.00<br>ad 5 %.  | 8 5.2<br>6.0<br>7 2  |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  13 x 14 to 16 x 24.  18 x 22 to 20 x 30.  16 x 36 to 44 x 30.  16 x 36 to 30 x 44.  16 x 36 to 30 x 4.  16 x 36 to 30 x 50.  10 x 50 to 44 x 50.  10 x 50 to 50 x 4.  | 18t,<br>8 6,50<br>7,25<br>9,25<br>11,04<br>13,25<br>14,00<br>15,00<br>15,00<br>17,50   | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.35<br>10.75<br>12.50<br>13.75<br>15.60<br>10.00  | 9d.<br>\$ 5,50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.00<br>11.25<br>12.50<br>13.25<br>14.00   | 4th.                 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 15 x 24.  18 x 22 to 20 x 30.  15 x 36 to 24 x 30.  16 x 36 to 30 x 44.  16 x 36 to 30 x 44.  16 x 36 to 30 x 44.  16 x 36 to 30 x 50.  10 x 30 to 34 x 50.  10 x 30 to 34 x 50.  10 x 50 to 34 x 50.  10 x 50 to 40 x 50.  Double Thick.—Disc  | 18t  | 2d.<br>\$ 5.75<br>0.75<br>8.50<br>9.25<br>10.00<br>10.75<br>12.60<br>13.75<br>15.00<br>10.00<br>to 50 as   | 9d.<br>\$ 5,50<br>6.25<br>7.75<br>8.25<br>9.60<br>20.40<br>11.25<br>13.25<br>14.00<br>ad 5 %.  | \$ 5.2<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 15 x 24.  18 x 22 to 20 x 30.  15 x 36 to 24 x 30.  16 x 36 to 30 x 44.  16 x 36 to 30 x 44.  16 x 36 to 30 x 44.  20 x 36 to 34 x 50.  20 x 36 to 34 x 50.  Double Thick.—Disc   | 18t  | # 45 to 4  # 5-75  8 5-75  8 5-75  8 50  9 25  10.00  10.75  12.50  13.00  10.00  to 50 as  2d.  | 9d.<br>\$ 5,50<br>6.25<br>7.75<br>8.25<br>9.60<br>20.40<br>11.25<br>13.25<br>14.00<br>ad 5 %.  | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15  | Discount    18t.   8 6.50   7.23   9.25   11.00   11.75   13.25   13.00   11.75   13.25   13.00   15.0 | # 45 to 4  2d.  # 5-75 6.75 8.50 9.25 10.00 10.75 13.50 13.75 15.60 15.00 15.75 15.90 20.  # 7.75 9.25   | 9d.<br>\$ 6,40<br>6,25<br>7.75<br>8,25<br>9,50<br>9,50<br>11,25<br>12,50<br>13,25<br>14,00<br>ad 5 %.<br>87,50<br>8,75   | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15  | Discount    18t.   8 6.50   7.23   9.25   11.00   11.75   13.25   13.00   11.75   13.25   13.00   15.0 | # 5-75<br>6.75<br>8.50<br>9-75<br>10-60<br>10-75<br>12-50<br>13-75<br>15-60<br>18-75<br>9-75<br>9-75<br>9-75<br>11-75  | 9d.<br>\$ 5.50<br>6.25<br>7.75<br>8.25<br>9.50<br>9.60<br>11.25<br>12.50<br>13.25<br>15.00<br>4d. 5%.<br>3d.<br>8 7.50<br>8.75<br>10.75  | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15  | Discount    18t.   8 6.50   7.23   9.25   11.00   11.75   13.25   13.00   11.75   13.25   13.00   15.0 | 2d.<br>\$ 5.75<br>6.75<br>8.50<br>9.55<br>10.00<br>10.75<br>12.50<br>13.00<br>13.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>15.00<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75<br>10.75 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  | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15  | Discount    18t.   8 6.50   7.23   9.25   11.00   11.75   13.25   13.00   11.75   13.25   13.00   15.0 | # 45 to 4  2d.  \$ 5.75 8.50 9.25 10.05 10.75 12.50 13.75 15.00 13.75 15.00 10.75 11.75 11.75 11.75 11.75 11.75 11.75  | 9d.<br>\$ 5.50<br>6.25<br>7.75<br>8.25<br>9.50<br>9.60<br>11.25<br>12.50<br>13.25<br>15.00<br>4d. 5%.<br>3d.<br>8 7.50<br>8.75<br>10.75  | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  15 x 36 to 4 x 36.  25 x 36 to 4 x 36.  25 x 36 to 34 x 36.  25 x 36 to 34 x 56.  Double Thick.—Disc  SIZES.  6 x 8 to 10 x x 56.  25 x 10 x 10 x 15.  1 x 14 to 15 x 14.  2 x 15 to 24 x 36.  | 18t.   6.50   7.33   9.25   11.00   15.40      | # 45 to 4  2d.  \$ 5.75 8.50 9.25 10.75 12.50 13.00 13.75 14.50 14.00 15.75 14.00 15.75 14.00 15.17 14.00 15.17 16.  | 9d.<br>\$ 5.50<br>6.25<br>7.75<br>8.25<br>9.00<br>9.60<br>11.25<br>12.50<br>13.25<br>14.00<br>4d. 5 %.<br>3d.<br>8.75<br>10.75<br>11.75<br>12.50   | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  15 x 36 to 4 x 36.  25 x 36 to 4 x 36.  25 x 36 to 34 x 36.  25 x 36 to 34 x 56.  Double Thick.—Disc  SIZES.  6 x 8 to 10 x x 56.  25 x 10 x 10 x 15.  1 x 14 to 15 x 14.  2 x 15 to 24 x 36.  | 18t.   6.50   7.33   9.25   11.00   15.40      | # 45 to 4  2d.  \$ 5.75 8.50 9.25 10.75 12.50 13.00 13.75 14.50 14.00 15.75 14.00 15.75 14.00 15.17 14.00 15.17 16.  | 9d.<br>\$ 5.50<br>\$ 6.25<br>7.75<br>8.25<br>9.60<br>20.60<br>11.25<br>12.50<br>13.25<br>15.00<br>45.5<br>87.50<br>8.75<br>10.75<br>11.75<br>12.50<br>13.25<br>14.25<br>14.20<br>14.25<br>14.20<br>14.25<br>15.00<br>14.25<br>14.25<br>14.00<br>14.25<br>14.25<br>14.25<br>14.25<br>15.00<br>14.25<br>14.25<br>14.25<br>14.25<br>15.25<br>15.25<br>15.00<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25<br>15.25 | \$ 5.4<br>6.0<br>7 2 |
| Single Thick.—  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  15 x 36 to 4 x 36.  25 x 36 to 4 x 36.  25 x 36 to 4 x 36.  26 x 36 to 36 x 36.  Double Thick.—Disc  SIZES.  6 x 8 to 10 x x 50.  1 x 14 to 15 x 34.  2 x 15 to 24 x 50.  3 x 24 to 20 x 36.  5 x 8 to 10 x 3 x 50.  4 x 50 to 4 x 50.  5 x 8 to 10 x 3 x 50.  6 x 5 to 5 x 5 x 50.  5 x 8 to 10 x 3 x 50.  6 x 5 to 20 x 30.  8 x 22 to 20 x 30.  8 x 24 to 20 x 30.  8 x 25 to 20 x 30.  8 x 26 to 34 x 50.  8 x 40 x 50 x 50.  8 x 50 x 50 x 50. | 18\$.  \$ 6.50  7.33  9.25  10.25  11.00  11.75  13.25  14.00  15.40  17.40  00.15  00.15  188.25  10.00  12.75  14.00  15.00  | 2d.<br>2d.<br>\$ 5.75<br>8.50<br>9.25<br>10.75<br>10.00<br>13.76<br>15.00<br>15.00<br>16.00<br>2d.<br>\$ 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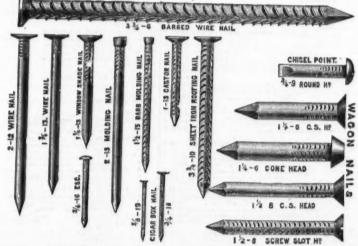
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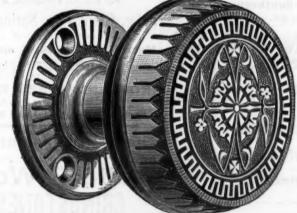


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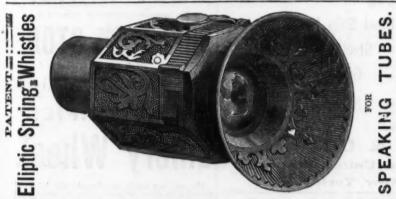
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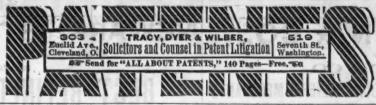
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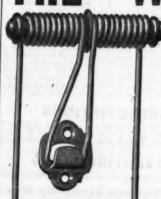
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| Luli & Porter   |  |
|   | % to 14 inch   |
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| inener  | Heavy Bands, 3¼ to 6 by ¼ and ε-16 leeh. 1¼ to 3¼ by ¼ and ε-16 leeh. 1¼ to 5½ by ¼ and ε-16 1¾ to 5½ by ½ to 2-16 1¼ to 6 by 1½ to 2-16 1¼ to 6 by Nos. 11 and 12 1 to 15½ by ½ to 2-16 1 to 15½ by ½ to 2-16 1 to 15½ by 1½ to 2-16 1 to 15½ by 1½ to 2-16 1¼ and 13-16 by ½ to 2-16 1½ and 13-16 by ½ to 3-16 1¼ and 11-16 by ½ to 3-16 1¼ to 15½ and 3-16 by ½ to 3-16 1¼ to 15½ to 15½ to 3-16 1¼ to 15½ to 3-16 1¼ to 15½ to 15½ to 3-16 1¼ to 15½ to 15½ to 3-16 1¼ to 15½ to 15½ to 15½ to 3-16 1½ to 15½ to 15½ to 15½ to 3-16 1½ to 15½ to   |
| agie—3\(\frac{1}{2}\) in. rolleach, \(\frac{1}{2}\) 2.85 dis 10 \(\frac{1}{2}\) rown-4\(\frac{1}{2}\) in. roll  | 134 to 4, Nos. 13, 14 and 15   |
| -6 in. roll   | 114 to 2, No. 20.<br>114 to 2, No. 21.<br>114 to 2, No. 22.  |
| ammers.  Gerkes & Plumb's, new list   | 15-16, I, and 136, Nos. 13, 14 and 15<br>15-16, I, and 136, Nos. 16, 17 and 18<br>15-16, I, and 136, Nos. 19 and 20  |
| Succession   Suc  | 15-16, r, and 136, No. 22<br>36, Nos. 13, 14 and 15.<br>26, Nos. 16, 17 and 18.  |
| Hunt  | % Nos. 19 and 20.  |
| Ausable Prid and 90 27 24 23 22 Blued and Polyted at 2 28 2 24 23 22  | 13-16, Nos. 16, 17 and 18  |
| District   | 13-16, No. 22<br>34, Nos. 13, 14 and 15.<br>34, Nos. 15, 17 and 18   |
| Discount on Ausabie and Clinton, 30 %; Globe, 10% ocks and Kuebs.   | No. 21.<br>No. 22.<br>11-16, Nos. 13, 14 and 15.   |
| Gaviord Cabinet dis 1082 % cash<br>American Padicuks  | 11-16, Nos. 16, 17 and 18  |
| No  | 96, Nos. 13, 14 and 15,<br>56, Nos. 16, 17 and 18<br>5 <sub>b</sub> , Nos. 19 and 20   |
| anterns. Nail City  | 96, No. 22.<br>96, No. 23.   |
| Globes, 35 cents extra per doz. net.  Who Mewers.—Pennsylvania  | 9-16, Nos. 13, 14 and 15<br>9-16, Nos. 19 and 18<br>9-16, Nos. 19 and 20   |
| Philadelphia  | 9 16, No. 22<br>9-16, No. 23<br>56 inch, Nos. 13, 14 and 15.   |
| attocks   | Nos. 15, 17 and 18   |
| olasses Gates.<br>Enterprise Mfg. Co.'s Measuring Faucetsdis 20 %<br>Stebbins' Gates.   | The prices under Hoop Iron do not  |
| brass Liquor Cocks, new list Jan. I 1982, dis 40 %  | 1-10c per lb. extra will be charged lighter than the lightest indicated. 1-10c per lb. extra will be charged to specified lengths.  Burrel Hoops.  |
| Dixon'sdia 40210 \$   | 114 to 2 in., cut to leng  |
| Since   Section   Sectio  | 114 to 2 in., cut to leng<br>o to 11 lbs, per set of 6 hoops   |
| tuffers   | Extras for Cutting to Length all P. All Iron, including Tire  Tank Iron.   |
| clotodis 30 % 71/2 % cash cash cash roll codis 25 % in 10 days. cash cash cash cash cash cash cash cash   | No. 9 and heavier  |
| Sailey dis socio discono di discono discono di discono discono discono di discono discono discono disc  | Sheet Iron.<br>Common. Chi   |
| ane irons,—Ohio Tooi Co   | No. 10 to 14   |
| Non-adjustable. dis 60210 g leks.—New list. unps.—Bickford  | No. 22 to 24   |
| # doz \$14.50 17.75 21 00 26.50 31 00 25.50 American Pattern  | Dalmandard Inon hand   |
| ales   Stanley Boxwood   dis 60 tro 5     stanley Tvory   dis   oktro 5     teev yards   Hart's Pattern   dis   oktro 5     dos   dit   oktro 5   | Nos. 14 to 20  |
| dis 50 %; full case, dis 50 % to % full case, dis 50 % to % try Squares, Stanley  | Current discount to Jobbers, 1st of quality, 37% %.  Coal Screen Iron.  4% by % by 4-162.00   1 by % by  |
| and Sharpened   | 4% by % by 4-162.0e   1 by % by Angle Iron, 214, 3, 34 and 4 inoh  |
| Sharpened When the sharpened is a sharpened When the sharpened When the sharpened When the sharpened When the sharpened sharpe  | 214, 3, 3¼ and 4 inch. 114, 134, 2 and 2¼ inch. 114 inch. 114 inch. 114 inch. 114 inch.  |
| Steel and Iron. dis 5 \$; full case, dis 55&ro \$; ry Squares. Stanley dis \$4£10 \$ Disaton's Try Squares. dis 24\(\frac{1}{2}\) \$ Sythes. Golden Clipper, Damascus Blade, Boxed and Sharpened. do \$4.50 \$ Gos \$4.50 | 1 14 by 1 inch, for Flow Handles   |
| Boynton's Lightning Cross Cut, new list. dis 25% One Man, all lengths, dis 20 % Billet Webs, 30 inch, dis 20 %  | 8 lbs. to the yard2.0c   20 lbs. to 12 " "2.0c   26 " 16 " "2.0c   26 "  Splice Joints for 12, 16 and 20 lb., for ea 3½ by 36 and 36 splikes for 20 and 20 lb. 21 by 36 and 36 splikes for 20 and 28 lb. and 30 by 36 " " 12 and 16 lt. 21 by 5, 16 " " 8-lb. Rail.  |
| Lightning Buck Saws, cross bardis 25 & Hand, Panel and Ripdis 25 & Rowland Spades.  | Splice Joints for 12, 16 and 20-lb. and 30 lb. Rail, 50c each : 40 lb., 60c ea 31/2 by 3/2 and 1/2 Spikes for 20 and 28-lb   |
| Diver Ames & Sons. new listdis 40&10 &<br>Griffithdis 10 &  | 214 and 3 by 36 " 12 and 16-lt<br>216 by 5-16 " 3-lb. Rail<br>Flat Rails.—Punched and Cot<br>114 to 2 by 36 to 36 inch<br>124 by 36 and 7-16 inch<br>124 by 36, 7-16 and 36 inch   |
| ad I rong to to the   | 136 by 86 and 7-16 inch  |
| ad I rons.—4 to 10 lbs.   | 134 by 36, 7-16 and 16 inch  |
| ad Irons.—4 to 10 lbs.  | 134 by %, 7-16 and 36 inch   |
| Add   Frens.  | 124 by %, 7-16 and 36 inch.  Juniata Nail Rods.  Norway  Guard Iron, 10.24.25 and 12.25.25.  Dras Bars  Dras Bars  Dropper hars  |
| Shavels and Spades.   | 134 by %, 7-16 and 34 inch.  Juniata Nail Rods. Norway  Guard Iron, 12.34236 and 32.35236.  Prag Bars  Cylinder and Landaide Iron.  Flow Beam Iron.  |

35

|                      |   | Г       |
|----------------------|---|---------|
| 1                    | Screws.   | 10      |
| 10                   | Screws. First Head Iron.  Brass  Bound Head Brass  Gls 95  Bound Head Brass  Lron  Als 25  Specims.   | **      |
| MOON                 | Species   | おれたのかれの |
| 15                   | Springs.—Torrey   | NO M    |
| 00                   | Gem Coil No. 1, Large Jap'd   |         |
| <b>90</b>            | Stove Polish.—Gem   | 2       |
| 00<br>00<br>00<br>00 | Tacks, Brads, &cc   | 54.79   |
|                      | Traps. Genuine Onelda—Newhouse  | E       |
| MMMMM                | Viens, - Solid Box, Trenton new list.   | 2       |
| % % %<br>10          | Mall. Bar   | 1       |
| ×                    | Wire, house to 18   | 1       |
| ***                  | Galvanised No. 7 to 18Market List, dis 37 to 37/6 % Wringers, Peerless No. 25/6   | 3       |
| ×                    | Galvanise   No. 7 to 15.  | 87      |
| 4                    | PITTSBURGH.   | HOMOS   |
| * **                 | Merchant Iron.  | 1       |
| MMMM                 | TERMS.—Note or acceptance at 60 days, with current<br>rate of exchange on New York, or a discount of 2 per<br>cent. for cash, if remitted within 10 days from date of<br>invoice.  Flat Bar.  | and a   |
| AMMA                 | 114 to 4 by 34 to 1 inch  | 3       |
| ***                  | 1 and 136 by 36 to 36 "   | 87      |
| N W W                | 1 to 136  | 2       |
| *                    | 45 to 5   | 207     |
| *                    | to 156.   2.50   \$ to 9-15.   2.70   \$ to 256.   2.50   \$ to 9-15.   2.90   \$ to 7-16.   2.90   \$ to 4   3.50   5.16.   3.50   \$ to 4   3.50   \$ to 4   3.50   \$ to 5.60   3-16.   3.50   \$ to 56.   \$ to |         |
| ld                   | % to %370 %550  | 3       |
| n x                  | % to 1% by 5-16 to 3% inch  | 1       |
| N N                  | 14 Inch, Nos. 13 and 14. 3.70  15   | 1       |
| s%<br>et<br>at       | Heavy Bonds   |         |
| 5%                   | 315 to 6 by 34 and 4-16 leeh. 2.70 134 to 334 by 34 and 5-15 2.70 1 to 136 by 34 and 5-16 2.86 34 to 35 by 34 and 5-16 5.00 34 and 35 by 34 and 5-16 5.00   | 200     |
| 5 %<br>1,000<br>8    | 156 to 6 by 16 to 3-16  | 1       |
| 6 %<br>1.00          | to she by Nos yr and to   | 1       |
| 0%                   | % and 11-16 by ½ to 3-16       3-70.         ¼ and 11-16 by Nos. 11 and 12       3-80.         ½ and 0-16 by ½ to 3 16       0.00.         ¾ and 0-16 by Nos. 11 and 12       1.10.   | 1       |
| 5 £                  | inch by 16 and 3-16   |         |
| 0%                   |   | 1       |
| o %                  | 194 to 2, No. 22. 3.60 19-16, I, and 196, Nos. 13, 14 and 15. 3.50 19-16, I, and 196, Nos. 16, 17 and 18. 3.60  | -       |
| 0 %<br>0t.           | 15-16, 1, and 134, No. 21   | 1       |
| 5%                   | %, Nos. 19 and 20   | 1       |
| 10<br>22<br>23       | 13-16, Nos. 16, 17 and 18   |         |
| 37<br>18<br>18       | 100   |         |
| os<br>2 %            | \$6, No. 21   | 1       |
| o %                  | 11-16, Nos. 19 and 20   |         |
| 0 %                  | 56. Nos. 16, 17 and 18  |         |
| net<br>net           | 96     No. 23.       9-16     Nos. 13, 14 and 15.       9-16     Nos. 10, 17 and 18.       9-16     Nos. 10, 17 and 18.       9-16     Nos. 19 and 20.  |         |
| ×00×                 | 9-16, No. 32  |         |
| o %                  | % No. 21  |         |
| 0 %                  | " No. 23 5.36 The prices under Hoop Iron do not apply to Cotton   |         |
| 0 % 0 % 0 %          | i-ioo per lb. extra will be charged for each gauge<br>lighter than the lightest indivated.<br>i-ioc per lb. extra will be charged for cutting floops<br>to specified lengths.  Barrel Hoops.  |         |
| 5%                   | o to 11 lbs, per set of 6 hoops. 3.50<br>§ ibs, and less than 9 lbs, per set of 6 hoops. 3.50<br>Less than lbs. per set of 6 hoops. 3.50  |         |
| 5 % S                | All Iron, including Tire  | 1       |
| sh<br>ys.            | No. 9 and heavier   |         |
| 5 %                  | Sheet Iron.   Charcoal.   Juniata.   No. 10 to 14.  |         |
| × × ×                |   |         |
| 0%                   | All sheets No. 18 and lighter, over 30 inches wide,   |         |
| \$ 50<br>00<br>0 %   | 1st quality (A) 126   2d quality (B) 20/4c Galvanized Iron—Juniata, Nos. 14 to 20 120   No. 27 146  |         |
| 0%                   | Nos. 14 to 20.   120   No. 27.   140  | 1       |
| a<br>let             | Coal Screen Iron. 4% by 5% by 4.16  |         |
| et<br>o %            | 13 inch 3.46 14 inch 3.46 14 by 1 inch, for Plow Handles 3.66   |         |
| 5 %<br>25%           | 154 by 4 " " 3.60<br>154 by 4 " " 3.60<br>T Ratl.   |         |
| 25%                  | 8 ibs. to the yard2.90   20 ibs. to the yard2.90   12 ''2.90   28 ''2.90   16 ''2.90   40 ''2.90   5 plice Joints for 12, 16 and 20-lb. Rail 400 and 11 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 11 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12   18 plice Joints for 12, 16 and 20-lb. Rail 400 and 12 plice Joints for 12 plice Joints f  |         |
| 200                  | and 30 lb. Rail. 50c each: 40 lb., 60c each. 3½ by ¾ and ½ Spikes for 20 and 28-lb. Rail  |         |
| o %                  |   |         |
| net<br>18c           | Juniata Nail Rods   |         |

|                                      | HE IRON AGE  |
|--------------------------------------|--|
| 15 %                                 | rod to tod\$5.00   |
| 15 % S                               | Best Quality Refined Cast Steel.   Squaret, Flat, Octogon and Round.   \$4 to 2 inchest, inclinative Cast Steel  |
| 20%                                  | 7-92 and 34 to 5 "   |
| 10 %                                 | 5-32 inch  |
| net                                  | less than above prices.  Machinery Steel.  Bessemer &  |
| s %<br>not<br>not                    |  |
| to \$                                | Ordinary Sizes, % to s inch Round 7/46 6c -ré and s/4 to 5 inches 8/4c 7c 4 and s/4 to 6 11 9/4c 8c -re inch 10/40 9c -re inch 10/40 9c -re inch 12/4c 11c   |
| 10 %                                 | Square, Flat and Octagon, 1/2 extra throughout the list. Cut to specified lengths, 1/2 extra.  |
| 55 %<br>35 %<br>80 %                 | Hammer Cust Steel, 2 inches and under  |
| 50 %<br>10 %<br>70 %                 | Sheet Steel,—Cruoible. Bessemer &  |
| 50 %<br>57 %<br>65 %                 | ic. extra for each additional gauge. Cut to multiples or specified longths, 1/4c, extra.   |
| 55%                                  | Miscellaneous Cust Steel.  Auger and Auger Bit. 854c Axies Steel for carriages and wagons 854c Free Points and Flates 50 Bide Bars 80 Pick, plain 80   |
| 0.00                                 | M and Matheole bounded   |
| 0.00<br>3.00<br>0.00<br>3.00         | Pick, plain.   Sc   Pick, plain.   Sc   Sc   Pick, plain.   Sc   Sc   Pick, plain.   Sc   Sc   Sc   Sc   Sc   Sc   Sc   S  |
|                                      | Roller :- 140<br>Spindle, subject to Machinery classification :- 34c<br>Trap Spring Steel :- 94c   |
| ent                                  | Piston Rods, plain   |
| per<br>of                            | Crucible, Open Hearth or Bessemer.   |
| 2.50<br>2.60<br>2.90<br>2.60         | thick. Boiler, Fire-Box and Fine Sheets, not less than 16 thick. Circulars and semi-circulars, when ordered separ-   |
| 2.9e                                 | ately. Smoke Stack, to shape. Locomotive Tank Steel.   |
| 2.70<br>2.90<br>3.10<br>3.30<br>3.40 | File Cust Steel,<br>Square, Round, Half Round and Flat Bastard, 8-<br>inch and over  |
| 3.40<br>5.50                         | File Cust Steel,  Square, Round, Half Round and Flat Bastard, 8- inch and over   |
| 3.30<br>3.70                         | Spiral and Taper, cut to lengths   |
| 4.00<br>5.50                         | 1x34 and over 8c 1x3-16, \$2x3-16 and 4. 8c 1x3-16, \$2x3-16 and 4. 8bert 1 and 1y-10-24 and 5-23, \$2x3-16 and 5-23. 9c 00 00 00 00 00 00 00 00 00 00 00 00 00  |
| 3.40                                 | Agricultural Implement Cast Steel.   |
| 3.70<br>3.50<br>1.00<br>3.80         | Fork and Rake, Crucible  |
| 4.40                                 | Crucible Plow Steel in slabs   |
| 2.70<br>2.70<br>2.80<br>3.00         | Spring   |
| 3.40<br>3.00<br>3.10                 | 10   |
| 3.20                                 | Scythe Back Steel 50 Grain Drill Bars 850 Points 850 Rolling Coulter Blanks out and seed 950   |
| 3.50<br>3.70<br>3.80<br>4.00         | Points   |
| 4.16<br>-4.30<br>-4.40               | in place of Crucible, the difference in price shall not<br>be greater than ic. per lb., except where especially<br>provided in the list  |
| 3.30<br>3.40<br>3.50<br>3.60         | if remitted within 30 days.  |
| 3.80                                 | Purnace, Floor and Straightening Plates. 2½c Housings and Castings not otherwise specified. 3 c Guide Plates. 3 c Spindles and coupling boxes. 3 c Sand Rolls and Plations, large size. 3 c Sand Rolls and Plations, large size. 3 c Size Size Size Size Size Size Size Size   |
| 3.40<br>3.60<br>3.70<br>1.00<br>3.90 | Sand Rolls and Pinlons, large size. 3 c<br>small size 3½C  |
| 3.8c                                 | Pipe Mill Castings   |
| 4.00<br>4.10<br>3.90<br>4.00         | Engine Castings, light.  |
| 4.10<br>4.30<br>4.30<br>4.60         | Chitted Rolls.  "5 to 7 in. diam., 7 to so in. long  |
| 4.10<br>4.30<br>4.30                 | 14 50 31 1m, 73 to 108 1M C  |
| 4.40<br>4.30<br>4.30                 | 500 B and over, 90; less then 500 B, 9460 in 25 and 50<br>B Tin Palls, 140. W B over keg price; 121/4 B Tin<br>P ills, 10 W B over keg price; assorted, 1 to 5 B, 100  |
| 4 60<br>4 60<br>4 50<br>4 50         | White and Red Lead.  Strictly Pure White Lead in Oil. in kegs, in lots of sco B and over, 9c; loss than 500 B, 05c in 25 and 50 B. Tin Philip, 5c. W B over keg price; 13% B Tin B and 100 B. S.   |
| 4.70                                 | Freights equalized with all points.  Terms: Note at sixty days, or if paid within 15 days from date of invoice, a discount of 145 per cent, will   |
| 4.90<br>4.70<br>4.70                 | AN INTRO AN CALLEGES   |
| 4.90<br>4.00<br>4.80                 | Per Box of to Feet.—Discount toking f on single strength, toking f on double.  Single Strength.  |
| 4.90<br>5.10<br>5.20<br>5.30         |  |
| ton<br>uge                           | 18 X 22 to 20 X 30. 10,74 0.75 8,70 7,25;<br>18 X 22 to 20 X 30. 10,74 0.75 8,74 7,75 15 X 36 to 24 X 36. 13.00 11.50 0,75 0,00 8,60 13.00 11.50 0,75 0,00 11.50 0,75 0,00   |
| ops                                  | 36 X 46 to 30 X 54   |
| .3.50<br>.3.60<br>.3.60              | Double Strength.   |
| .3.8c<br>1.100                       | 18 X 14 to 16 X 24. 14.40 13.25 12.50 11.24 18 X 22 to 20 X 30. 15.25 17.25 14.50 15.35 10.25 17.25 14.50 15.35 10.25 17.25 14.50 15.35 16.50 16 |
| 3.30<br>3.50<br>3.80                 | 15 X 30 tO 24 X 30. (6.7% 17.26; 14.50) 20 X 28 tO 42 X 30. 21.00 18.5c 15.75 26 X 36 tO 30 X 44. 23.25 26 X 46 tO 30 X 50. 22.60 18.5c 16.75 30 X 36 tO 30 X 54. 25. 26. 27.60 18.50 30 X 38 tO 30 X 54. 25.75 30 X 38 tO 30 X 54. 25.75 30 X 38 tO 30 X 54. 25.75 30 X 38 tO 30 X 54. 32.55  |
| ata.                                 | 30 X 50 to 34 X 50. 27,75 35.00 21,75 34 X 58 to 34 X 50. 29,25 27,75 24.00 30 X 60 to 40 X 60. 33,24 30.00 27,75  |
| 6.50<br>6.80<br>7.10<br>7.30<br>7.50 | An additional to per cent, will be charged for all glass more than 40 inches wide. All sizes above 25 inches in length and not making more than 81 united inches, will be charged in the 84 united inches bracket.   |
| 7.70<br>8.10<br>ide,                 |  |
| 140                                  | Durhamville Glass Works  |

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ost effective of all Butts in the market, on a e the reverse of all others, exerting their power when the door is closed. REDUCTION IN PRICE. 

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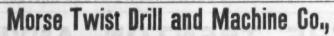


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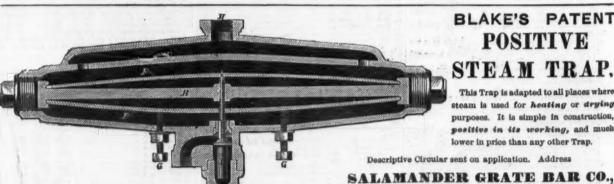
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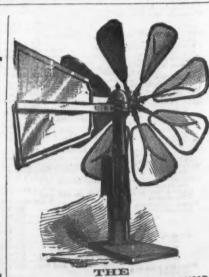
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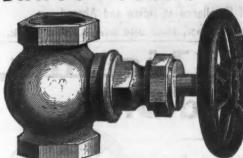
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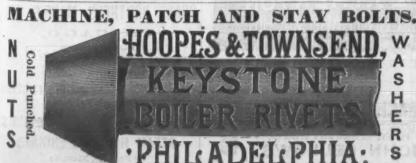
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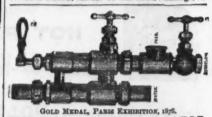


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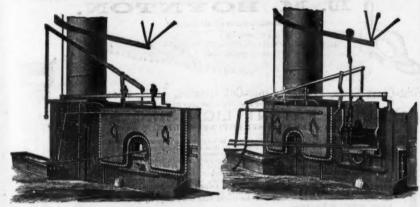
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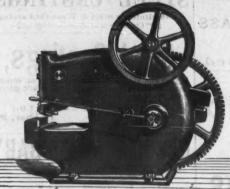
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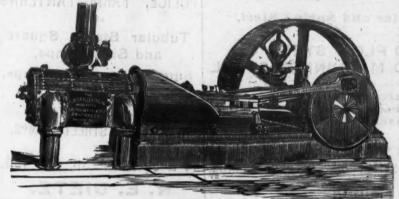
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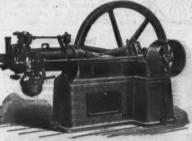
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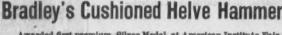
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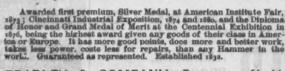
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